

Marketplace Industrial

YOUR INDUSTRIAL ASSET | FEBRUARY – MARCH 2022

POWERBASE™

LUMINAIRES

Considering Certification when Specifying for a Hazardous Site

Flameproof Motors

Aluminium Motors now in New Zealand

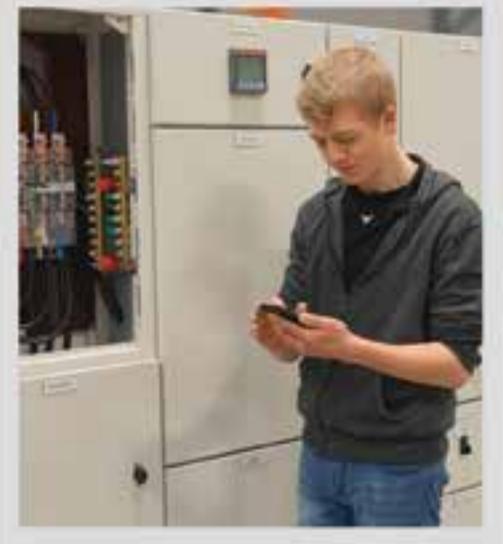


Featuring: Hazardous Site Safety

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Welcome...

to 2022 and to the first issue of Marketplace Industrial for the new year.

This year we will bring you interesting articles across a wide range of industrial and commercial sector topics.

In this issue our lead article is on Hazardous Site Safety – an essential consideration for many industrial sites.

Powerbase members consistently carry a greater range and volume of stock than the industry average and because each owner deals with suppliers, they are not reliant on centralised supply hubs or third-party supply channels.

Every Powerbase business is 100% New Zealand owned and operated and focused solely on meeting their customers' needs.

Regards



Kevin Lynn
Commercial manager

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EX E vs. EX D:

Which Protection Method is Right for You?

When specifying a luminaire for use in a hazardous area, one of the most important things to consider is certification.

In simple terms, the luminaire needs to be approved to an appropriate level, based on the environment in which it is being installed. If your site has been designated as a Zone 1 hazardous area, you will need to specify a luminaire which has been approved to Zone 1 standards.

Beyond this, it's also important to look at the method of protection used during certification; this can have a significant impact on how the luminaire has been designed. While there are various different protection methods, two are particularly common in Ex luminaires; Ex e 'increased safety', and Ex d 'flameproof'.

Ex e – luminaires approved to this standard are designed to be cool running and prevent arcs, sparks and hotspots from occurring. In short, this protection method is focused on preventing the risk of explosion by ensuring an ignition source cannot arise.

Ex d – luminaires approved to this standard must be able to safely contain an explosion, and the accompanying pressure that develops. They must prevent any fire or sparks from escaping the enclosure and into the surrounding explosive environments. This protection method is therefore focused on containment rather than prevention.

With a basic understanding of the principles behind these protection methods, we'll now look in detail at how this dictates the way a luminaire can be designed, and how that impacts an end user.

Ease of Maintenance

One of the main differences (between luminaires certified using Ex e or Ex d standards) is how easy they are to maintain. Ex d luminaires are designed using flamepaths. The flamepaths are essential to the luminaire's Ex certification, extinguishing flames before they can escape into the external environment. To maintain a suitable flame gap, a number of bolts (tightened to a specific torque) are used. These must be removed in order to gain access to internal components for maintenance procedures.

Not only does this make maintenance more time consuming, it also makes it more complicated for the person carrying out the maintenance. They must be careful to ensure the correct flame gap is retained when the housing is put back together. Failure to do so could invalidate the Ex certification.

With Ex e protection there is no requirement to use flamepaths, meaning these problems are eradicated and the luminaire can be much easier to maintain.

Ease of Installation

Another drawback of trying to 'contain' an explosion is the way in which a luminaires



housing must be designed; it must be suitably thick to contain an explosion, and the pressure that comes with it. An Ex d luminaire therefore tends to be bigger, bulkier, and heavier than a comparable Ex e fitting. By being lighter and more compact, Ex e luminaires are easier to install and maintain. When designed using strong materials, such as Aluminium or Stainless Steel, they can still retain high levels of durability and robustness.

Temperature Ratings & Gas Groups

Due to changes in the property of a gas or vapor at low temperatures, most Ex d luminaires are not suitable for installation in areas below -20° C. Because Ex e luminaires are designed to prevent an ignition source occurring (rather than preventing gases from entering or escaping), they are likely to have a much wider temperature rating. Of course, you should always check the temperature rating of any piece of ATEX equipment, but having this understanding should help to make specifying easier.

Further to this, if your application requires

equipment which is certified for IIC gas groups, it may be difficult to find a suitable Ex d luminaire. Because the gases in the IIC gas group are deemed highest in risk, an Ex d fitting must use tighter flame gaps (which are more complex to manufacture). For this reason, fewer Ex d fittings exist which are approved for IIC applications, and those that do tend to be expensive and even more difficult to maintain.

Wireless Technology

Introducing new technology into hazardous areas is always a challenge, but we are beginning to see the emergence of smart / IoT enabled luminaires (as is more common in industrial and commercial markets).

As we identified earlier, an Ex d luminaire's housing must be suitably thick to contain an explosion, and the pressure that comes with it. Much like it can be difficult to achieve a good Wi-Fi signal in a house with thick walls, an Ex d housing may not be the best solution for wireless technology. In contrast, with the Ex e protection method, there is far more scope to integrate this kind of technology into the luminaire. ☐

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Eurotec Ltd are proud to market and support the E+E Elektronik range of specialty sensors in New Zealand. E+E specialize in the development and production of sensors and transmitters for humidity, dew point, moisture in oil, CO₂, air velocity, flow, temperature and pressure.

The E+E Sigma 05 Sensor Platform, EE800 and CO₂ Guard 10 sensors

provide accurate means to monitor and control based on CO₂ which makes them perfect for a wide range of applications from schools to greenhouses. The

Sigma 05 sensor hub represents the central element of the E+E modular sensor ecosystem with intelligent probes, analogue outputs, and display. With pluggable, interchangeable probes, the modular sensor platform is suitable even for harsh and challenging environments. The free PCS10 Product Configuration Software allows for easy setup of the Sigma 05, measurand assignment and thresholds, display layout, scaling of the analogue outputs and adjustment of the connected probes.

The **EE800 CO₂, temperature and humidity room sensor** accurately measures CO₂, temperature (T) and relative humidity (RH) in HVAC applications. Additionally, it calculates the dewpoint temperature (Td).

The E+E dual wavelength NDIR CO₂ sensor compensates for aging effects, is highly insensitive to pollution and offers

outstanding long-term stability. A multiple point CO₂ and T factory adjustment leads to excellent CO₂ measurement accuracy over the entire T working range.

The **CO₂ Guard 10 room sensor** with traffic light display, reliably shows the carbon dioxide (CO₂) concentration in the ambient air as a measure for indoor air quality (IAQ). The CO₂ level indicated by the LEDs helps deciding on the need for ventilation, for example by opening the windows. The CO₂ Guard 10 employs the dual wavelength NDIR measurement principle with auto-calibration, which stands for outstanding long-term performance even in harsh and polluted environments. Pressure and temperature compensation with on-board sensors lead to best accuracy irrespective of the location (altitude), weather and environmental conditions. The sensor also offers flexibility in that it can be wall mounted or used as portable tabletop device. ☐

Get in touch with your Powerbase Member today to find out more. www.eurotec.co.nz

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E+E

your partner
in sensor
technology.



Sigma 05 - Modular Sensor Platform

The heart of the E+E modular sensor ecosystem with plug-and-play design, automatic probe discovery and easy software-based configuration and adjustment.



EE800 - CO₂, temperature & humidity room sensor

Accurately measures CO₂, temperature and relative humidity and calculates the dewpoint temperature. Offers long-term stability with insensitivity to pollution.



CO₂ Guard 10 - CO₂ room sensor with LED display

Shows the CO₂ concentration in the ambient air as a measure for indoor air quality through the traffic light LED display.

INTRODUCING TESYS DECA

The New Generation of TeSys Motor Control



This Series will provide a greener, more robust and highly innovative motor starter solution, thanks to its range of new technical features.

The series also assumes a sleek dark-grey design, for a more modern look and feel without any changes to the part references and product dimensions.



TeSys GV2/GV3



TeSys D



TeSys LRD



TeSys Deca Power Motor circuit breaker



TeSys Deca Control Contactors



TeSys Deca Protect Overload Relays

The new TeSys Deca Series is derived from the existing TeSys D contactors, combining the TeSys GV2 and TeSys GV3 motor circuit breakers, as well as the TeSys LRD overload relays, and offers a host of new features. The TeSys Deca Series covers all major motor ratings, from 3.7 kW up to 75 kW.

Modern TeSys signature

Homogenous dark grey design for a modern look and feel for all products.

IEC60335-1 compliant contactor

Standard offering meets electro domestic requirements.

Improved Connection

One screw head to fit most common screw drivers: Phillips, Pozidriv and flat.

Auxiliary contact suitable for 1mA

For direct connection to PLC, dust- resistant for harsh environment.

Green Packaging

Made from 100% recycled material, paperless product information.

Traceability – from plant to customer

Anti-fake service and easy quality check thanks to QR codes. ☑

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PRODUCTS THAT GO BEYOND

Minimum Environmental Regulations



For today's manufacturers of electrical and electronic components, the RoHS and REACH requirements are the toughest environmental standards in the world.

RoHS, which stands for Restriction of Hazardous Substances, took effect in 2006 and calls for the elimination of six specific substances, plus four types of phthalates, that until a few years ago were commonly used in electrical equipment, such as circuit breakers and wiring devices.

REACH is the European Regulation on Registration, Evaluation, Authorisation and Restriction of Chemicals and became effective in 2007. The regulation puts the responsibility squarely on industry to identify and guard against the risks posed by chemicals, some 14,000 of which are now registered in the REACH database. The regulation calls for the "progressive substitution" of 168 chemicals on a short but growing list of "substances of very high concern" (SVHC).

These standards require all manufacturers to carefully and thoroughly identify all materials going into their products and all chemicals being used in the manufacturing process to ensure compliance. Both regulations are legal mandates only with regard to products being made and sold in Europe, but Schneider Electric saw their adoption as an opportunity to develop solutions to help customers and end-users around the world move beyond simple compliance. Today all of our products and processes meet RoHS and REACH requirements, regardless of where they are being manufactured or supplied; no non-compliant versions are offered in other regions of the world. And that means that in the more than 100 countries where our products are used, everyone is benefitting as a result of RoHS and REACH.

We launched the Green Premium™ ecolabel program in 2012 to provide customers and end-users with an easy way to confirm the level of our products' overall environmental compliance.



The program is designed to give transparent insight into the environmental impact of each product we make and gives customers and end users confidence in knowing they are using environmentally sound technology. The Green Premium label is awarded only to products that are documented as:

- Meeting RoHS requirements
- Complying with REACH regulations
- Having a comprehensive Product Environmental Profile (PEP)
- Including End-of-Life instructions (EoLi)

These requirements apply even to our legacy products and products that have come into the Schneider Electric line through acquisition, such as the APC and Square D product lines. As of early 2016, nearly three quarters of Schneider Electric's offerings already were Green Premium products. Additional products earn the Green Premium label as their PEP and EoLi documentation is completed.

Knowing that Schneider Electric products meet environmental requirements is great, but here's something even better: All the documents needed to back up the claim of

environmental responsibility are instantly and freely available on the company's Green Premium web portal through the "Check your product" option. Visitors can manually enter information about individual parts or upload an Excel file with multiple part numbers or classification descriptors.

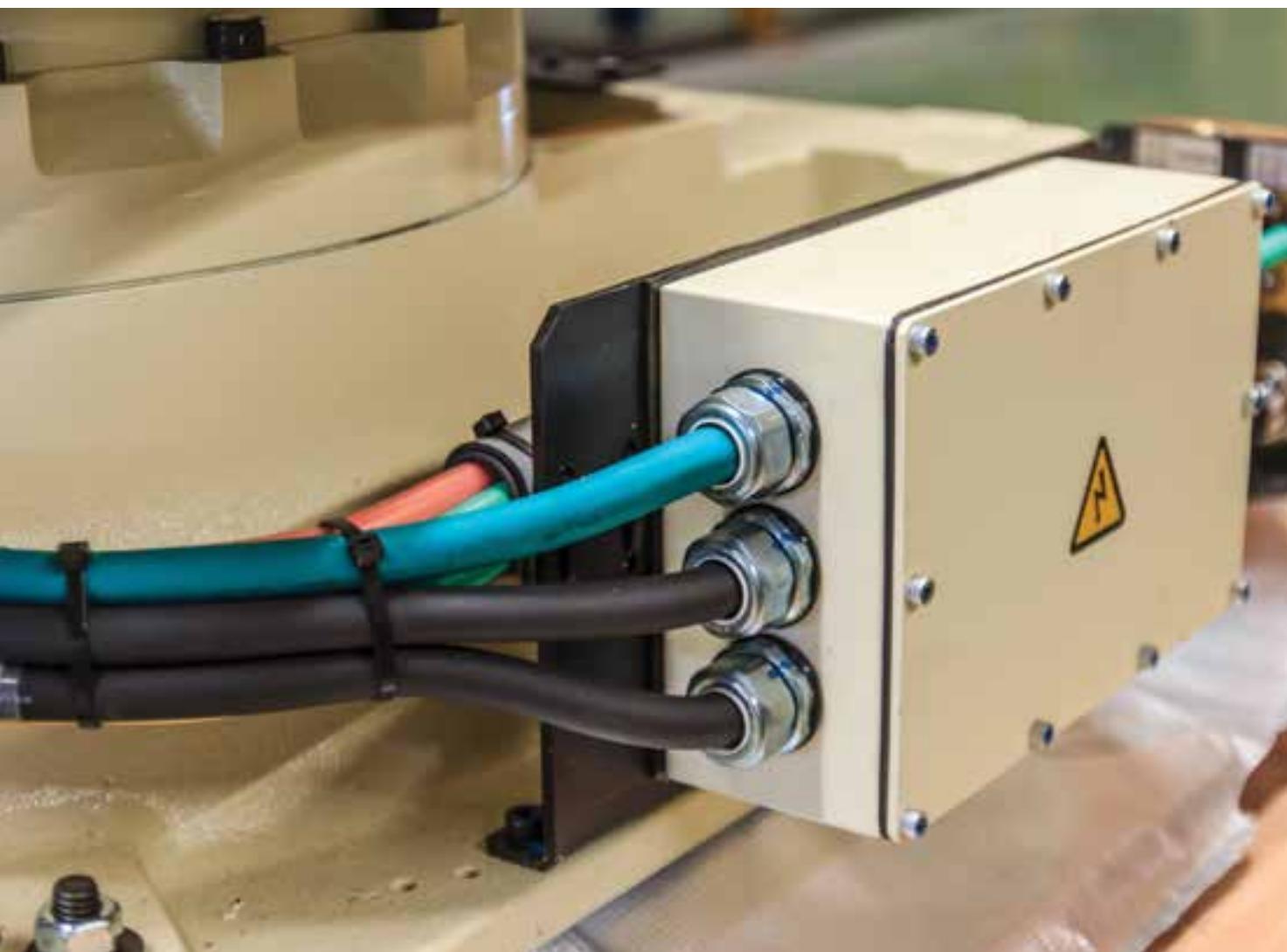
Access to the environmental documentation for more than half a million products is simple, free and fast. Anyone interested in determining a product's Green Premium status or simply confirming RoHS and REACH compliance can do so quickly and conveniently online.

Specifiers and contractors charged with assembling the environmental compliance and integrity documentation for all types of projects – from machinery packages to building projects – are perhaps the most enthusiastic about the availability of this new tool. Complete, up-to-date, and easy-to-find documentation is available 24/7 from any location. ☑

Adapted from <https://blog.se.com/energy-regulations/2016/08/29/products-go-beyond-minimum-environmental-regulations/>

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BARRIER GLANDS

Different Types and When to Use



Figure 1.



Figure 2.



Figure 3.

Problems With Cable Construction

In order to comply with the installation codes of practice for hazardous areas, cable glands using elastomeric sealing rings should only be used on cables that are substantially round, compact with

an extruded bedding and have non-hygroscopic fillers such as Figure 1. However, this cable construction is not always possible especially when it comes to multi-core cables. Figures 2 and 3 show cables that should not be used with glands with elastomeric sealing rings.

When To Use Barrier Glands

IEC 60079-14: Explosive atmospheres; Electrical Installation, Design, Selection and Erection prescribes the selection of electrical equipment in hazardous areas. Knowledge of this Standard is imperative when selecting cables and cable glands for use in hazardous areas and merely referring to the product certification is not enough.

IEC 60079-14 Section 9.3.2: States that: Cables for fixed installations – shall be: a) sheathed with thermoplastic, thermosetting, or elastomeric material. They shall be circular and compact. Any bedding or sheath shall be extruded. Fillers, if any, shall be non-hygroscopic; If cables do not pass one of these criteria and such cables link between a hazardous and non-hazardous area, the result may be flammable gas, liquid or vapour migration through the interstices of unfilled cables to the inside of; for example, control room equipment. The situation is likely to be most acute with equipment installed in Zone 0 or Zone 1 locations (where the

presence of a hazardous atmosphere has a greater likelihood and duration). If these conditions are likely to occur a barrier gland should be used.

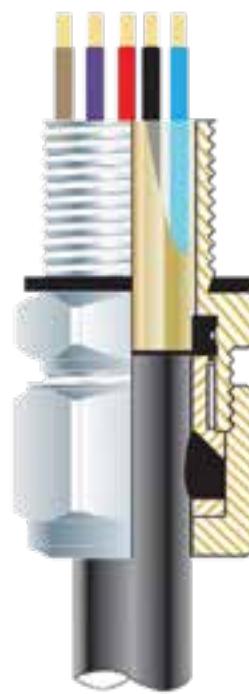
Types of Barrier Glands

Two Part Epoxy Based Putty: For many years this was the only solution, it's time consuming and reliant on accurate mixing and installation to get an effective seal to stop explosive gases and liquids diffusing down unfilled cables. If the putty isn't mixed properly it can't do its job and if it's mixed properly but not accurately installed to fill all the voids properly, again it won't maintain a gas and liquid seal in case of an explosion.

Sachet Mix Liquid Pour Resin: Although much faster than the putty option, this still takes almost twice as long as the CCG solution. The sachet mix pour resin has its own set of limitations, not least of which being the dependance on the installer to mix it properly before application into the

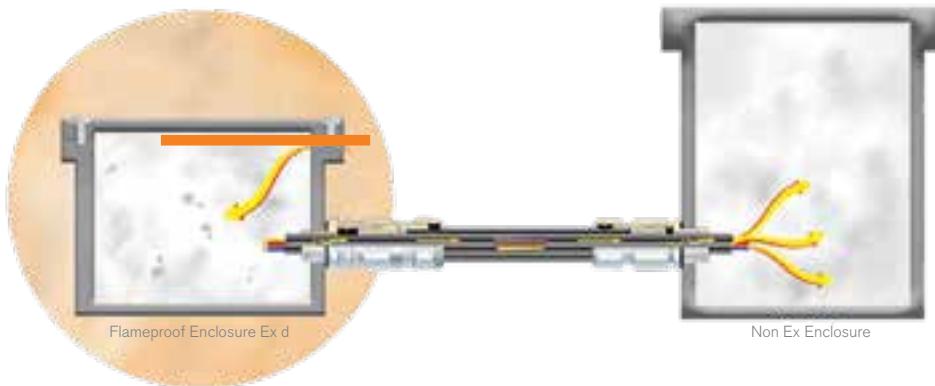
gland. If the two part resin is not mixed properly, it can either go off too quickly or not set at all.

CCG VORTex™ Injection Resin™: This instant mixing, injecting resin has all but eliminated the hassles surrounding the preparation, mixing and applying of compounds/resins in Barrier Glands. The VORTEx® Injection Resin® system is instantly and 100% accurately mixed whilst being simultaneously injected into the barrier gland in one single action. This reduces the installation time and gives an increased confidence in the installation compared to the epoxy putty or sachet mix liquid pour resins. The Injection resin flows into all the cable voids and interstices, completely filling the cable end. This forms a 100% barrier to any migration of explosive gases or fluids down the inside of an unfilled hygroscopic cable. VORTEx® Injection Resin® barrier glands are tested and fully comply with the latest IECEx standards and installation codes of practice.



Zone 1 Gas

Safe Area



Ex d Equipment:

IEC 60079-14 Section 10.6.2: Requires the use of Barrier Glands for Ex d installations. Conventional flame-proof Ex d cable glands with seals are designed primarily to retain the explosive pressure within an Ex d enclosure and prevent the passage of hot gasses through the cable entry to the surrounding atmosphere. The design of such cable glands relies on elastomeric seals sealing around the bedding of filled cable to perform this function. It has been established that if cables are not effectively filled, substantially round and are hygroscopic, hot gasses and pressure produced by an explosion within an Ex d enclosure can bypass the protective elastomeric seals of a conventional Ex d Gland. These hot gases can be forced down the interstices

of unfilled cable resulting in the potential damage to the cable and/or non-Ex d equipment. The use of barrier glands effectively blocks these explosive gases from migrating down interstices of unfilled cable.

Barrier Glands are also required for the following equipment:

Ex p: Pressurized Equipment may also necessitate the use of Barrier Glands. Where necessary, to prevent the drop in pressure, the ingress of combustible gas or vapour by diffusion, or to prevent leakage of protective gas, wiring systems shall be sealed. If cables are not compact and filled, barrier glands should be used.

The use of barrier glands effectively blocks explosive gases from migrating down interstices of unfilled cable.

Ex nR: IEC 60079-14 Section -10.8 states; "The sealing of restricted-breathing enclosures shall be such as to maintain the restricted breathing properties of the enclosure. Where the cable used is not part of the certificate and/or instruction manual and is not effectively filled, it may be necessary to use a cable gland or other method (e.g. epoxy joint, shrinking tube) which seals around the individual conductors of the cable to prevent leakage from the enclosure". ☐



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FLAMEPROOF MOTORS

For Hazardous Sites

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A series of **Aluminium motors** which are completely modular. The feet and flanges can be mounted without affecting the Ex-type of protection. Applying feet and flanges it is possible to realize every requested mounting arrangement and this operation can be made without any problem for ATEX and IECEEx motor approval.

Main features

Orange 1 Ex electric motors are manufactured and tested in compliance with all the EN/IES standards and also in compliance with the main European Directives.

Presence of GAS:

- Type of protection
- GAS group
- Temperature class
- Ambient temperature range

Zone 1 Zone 2

- 'Ex db' or 'Ex dbeb'
- IIC (Suitable IIB and IIA)
- T3, T4 E T5 (Suitable also for T2, T1)
- -40°C +60°C for temperature class T3
- -40°C +60°C for temperature class T4
- -40°C +60°C for temperature class T5

Performance Plus

The IP Degrees of protection of the motor comply with IEC/EN 60034-5 and EN60259

Insulation class All the motors have an insulation class F in compliance with IEC/EN 60034-1.

Winding Made using enamelled copper wires are insulated with two layers (Insulation class H). They are painted with another layer of varnish and then placed in an oven for drying. It is also possible to tropicalize the windings using special additional varnish with high hygroscopic characteristics to be used in places with Humidity >60%.

Frame (In compliance with EN 50347). Die-cast with high mechanical strength, with a good thermal conductivity and light weight. The feet can be mounted on the motor frame in 3 different positions, on the bottom or on the left side.

Flanges and Shields (In compliance with EN 503471). Die-cast aluminium, with dimensions as per standard IEC 60072-1, or with special shapes on request: The motor is completely modular so that the flanges can be mounted or removed depending on the needs without affecting the Ex type of protection (as the flange is mounted on the front side).

Anti-Condensation Heater For motors installed in cold and wet places, with

significant temperature ranges. Moisture condensation can be dangerous for resistance of the winding insulation. Upon request, we can apply appropriate heaters directly on the heads of windings. The terminals are connected to a terminal board inside the connection box of the motor.

PT100 Is a device that increases its resistance according to the increase of temperature. It is useful for continuous measuring of the winding temperature, when properly connected to an electronic equipment. ☐

Great range of stock on hand! All RMS products are available from your local Powerbase Branch.



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Electric Motors



Crompton Greaves
Electric Motors



ABB Electric
Motors



VFS Modular
Brake Units



OLI Vibrating
Motors



Delta Variable Speed Drives



Industrial Gearboxes

TESYS GIGA MOTOR STARTER RANGES

Next-Generation Series with Digital Innovation



Over more than four decades, the TeSys F range of contactors has built a high reputation for performance, reliability, and quality.



The TeSys F range set the industrial standard for high power contactors with an installed base of millions of products. TeSys F contactors were the first choice of many OEMs, control panel builders and industrial users.

But industry requirements have evolved to demand process performance monitoring through data networks and online expert services.

TeSys Giga is Schneider Electric's new range of contactors that answer these

evolving needs. TeSys Giga Contactors support the evolution of processes and offer new services to reduce nonproduction time to a minimum. Replacing TeSys F Contactors, TeSys Giga Contactors address a wide range of demanding applications with built-in advanced features and functionalities.

The next-generation TeSys Giga series motor starters offer robust performance while optimising your time on tasks thanks to its range of new technical features:

- 115–800-A contactors, 28–630-A overload relays
- Self-diagnostic indicators and full-scale protection that helps speed up corrections and prevent downtime
- Streamlined commercial references for much faster product selection
- Modular design that simplifies machine integration and maintenance
- On-board PLC operation control

TeSys Giga Series Motor Starters

Tesys Giga series reduces engineering time and complexity, improves machine reliability and uptime, while driving down maintenance costs through several unique features:

-  **Advanced and standard versions** – suit different customer needs, providing flexibility of choice.
-  **Modular design** – enables easy replacement of spare parts to improve the reliability and robustness by up to 90% with up to 50% faster integration and commissioning time.
-  **Compact footprint** – 40% product size reduction supports optimal cabinet installation space.
-  **Self-diagnosis** – achieve predictive maintenance with unique calculations to better diagnose and detect: contact wear, tips wear level, coil under/overvoltage, internal fault, and contactor open and close status. This feature significantly maximizes resilience and uptime for an efficient site operation.
-  **Full-scale protection** – initial settings provide a safer journey when it comes to overload relay protection, including trip class selection, ground fault protection, and phase imbalance protection.
-  **QR codes** – easy and quick access to technical documents, video guides, and counterfeit safeguards to help improve the customer's digital experience.
-  **Highly reliable within harsh environments** – improved auxiliary contacts (17V,1mA,10-8) enable better reliability in harsh environments and conform to high-density PLC input applications.
-  **Motor starters** – assembled with LR9G electronic thermal overload relays, these starters are compact in design, and direct mounting of overload relay saves space and installation time.



EcoStruxure™ Motor Control Configurator

Find the best motor control solution for any application with the options to:

- Build your motor starter configuration with different solutions
- Complete offer base suited for different countries
- Easily select and replace complex paper catalogues
- Convert into Bill of Materials by adding the products to the cart
- Save and re-work your configurations
- Directly access product documentation in one place 

Life Is On

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BACK ON THE TOOLS

How Electrical Safety has changed

The recent summer holiday break gave me the opportunity to deal with a few electrical jobs that I needed to attend to. And when doing these I had the opportunity to contemplate how electrical safety has evolved over time.

For me, the removal of a spa pool from a friend's property and the restoration of a fishpond were key tasks that needed attending to. While not strictly prescribed electrical work, the isolation of multiple circuits was a critical part of the work.

This had me contemplating where we have got to in the energy and electrical safety space, and how we got here.

Identification of the circuit was relatively easy as there was only one RCD in the switchboard, a reminder of how things

have changed since the early 2000s when this switchboard had been installed.

But it did look a bit strange, justifying double testing of the circuits to the pool before commencing work.

The pool had its own switchboard which made the pool, as an appliance, similar to a submain fed second installation. But what I found here were several conductors, including a green earth conductor in the TPS circuits feeding the pool that had been sleeved with red tubing to indicate that they are live conductors. An old practice which is no longer allowed and demonstrates why testing before working is so critical, especially when kneeling on a wet patch of concrete while carrying out the work.

There were two circuits from the main switchboard, fortunately both supplied from the RCD I had tripped. At this point I note that I used the test button rather than operating the toggle, an old trick from my time in mining as it serves to verify that the RCD is operational.

The pool was supplied through its own isolator which was able to be locked in the OFF position, something critical if I was only isolating the pool for others to remove it.

It is imperative to ensure that the risks we leave behind have all been addressed and mitigated.

Update to Regulations in 2022

I was reminded about the lockable isolators when I saw a hot water cylinder cable and standard switch on sale at a local retailer's shop over the break. It is important to note that this should only be sold as a replacement (See Regulation 59 (3) of the Electricity Safety Regulations 2010), and not for use in a new installation.

"Three Thou", the installation standard AS/NZS 3000:2007 now requires a true isolator for hot water heaters, one which cannot be moved to the OFF position if the contacts are not broken and one that can be locked in the OFF position.

This is because plumbers may be required to access the element enclosure.



Peter Morfee
Principal Technical
Advisor, Energy
Safety, WorkSafe NZ.



Upon seeing the older style cylinder switches and reflecting on the new legislation, I was reminded of the surprise you get when the power to the water heater comes on by itself, with the help of the electricity supplier.

Being aware of both old and new practices is something we need to consider when working with and around electricity, particularly when it comes to testing – an important part of Prescribed Electrical Work (PEW).

All of this must be considered in context with the "Three Thou" AS/NZS 3000:2018, particularly as a series of updates is coming to the regulations.

WorkSafe expects decision will be made to transition into the 2018 edition of AS/NZS 3000 in Regulations by mid-2022, with an appropriate "warm up period" for work that has already been commenced in line with the 2007 version. Similarly, the companion standards of the 3000 family and the PV and inverter standards will also be updated.

Global warming has meant the energy sector has had to make substantial changes.

Appropriate use of equipment

Over the holiday period I was asked to check two electronic pest eradicators. One of which was 120 volt 60 Hz rated and the other 220 volt rated that had its

plug modified to work in New Zealand by an electrician I was told. Both were testing the circuit breakers on a regular basis.

There is a lesson to be learned here. Not all items are suitable for use in New Zealand, especially those that are not marked with the 230 volts of our power system. 240 or 220 volt appliances are not suitable. Switches and cables of course can be marked with a maximum voltage, but safety items such as RCDs and appliances must be suitable and marked for use with New Zealand standard low voltage of 230 volts.

It is important to understand that "Test and Tag" is only suitable for appliances that were compliant when new and is far from adequate to assess the safety of a new appliance.

If you purchase equipment from overseas or "online" to install for your customer you could find yourself being held accountable for compliance with the supplier obligations of the Regulations, so make sure you know the pedigree of the products you install. Get supplier declarations if in doubt. A recent recall of DC isolator certification is a demonstration of the risks.

PPE (Personal Protective Equipment) & Installation Safety

Finally, with all the QR codes, face masks

and gloves don't forget that electricity can get a bit excited from time to time. Make sure you wear the right PPE, not just have it in the van, or being carried by the apprentice. And think about confined spaces, especially on a hot day.

Coming back to global warming, the response is going to load the electrical system more than it has been loaded before, so if you are installing a high-power device such as an EV charger, or a big PV array, take a little time to check that the installation will not be overloaded. Recalculate the volt drop and conductor ratings. And ask for compliance information for equipment you are unfamiliar with and attach it to your CoC's.

So, I am now back to work knowing I have tested all my RCDs and looking forward to an interesting future where my EV will serve to "Bring Your Own Electricity" to the neighbor's BBQ, and maybe even the old power line pylons will be used as anchoring towers for hydrogen airships. ☐

Keeping homes safe for when the occupants come home from their workplace is part of our work as electrical professionals.

Specialists in electrical and automation products, systems and solutions

Allen-Bradley® Modular Control System

Simple. Easy. Tested.
Does applying industrial control seem harder than it should be?

The Modular Control System is specifically designed to make your job easier. With many intelligent components, options and connectors, NHP and Rockwell Automation deliver a tailored industrial solution to meet your needs today and into the future.

When you combine Modular Control System components, you get a solution tested to a higher standard in every valid combination, certified and supported locally.

Designed as a system - tested to work together with relevant components for your unique applications

Standards and certifications - tested and certified to global standards to meet your application requirements

Selection - one place to find motor starting, protection and isolation solutions in sizes from 5...2650 Amps

Local sales and support - sold and serviced wherever you are in New Zealand

Legendary Allen-Bradley quality - the byword at every phase of design, testing and production



Allen-Bradley

by ROCKWELL AUTOMATION



Motor protection circuit breakers and motor circuit protectors - basic or full-function, including moulded case circuit breaker options.

Connectors - because it is a system, connectors let you mount circuit breakers to contactors, saving wiring and creating an integrated motor starter.

Contactors - our NEMA, IEC and miniature contactors are flexible, modular and easy to select and apply, with many coordinating accessories.

Motor protection relays - Allen-Bradley offers a broad range of motor protection devices. From simple, single purpose protection to smart overload technologies that feature comprehensive diagnostics and Logix integration.

ISO – new look, same power



NHP's Industrial Strength Options (ISO) range of IP 66 rated plugs and sockets are suitable for industrial, commercial and domestic single and three phase applications. The range is comprehensive in terms of its colours, materials and modularity to resist the effects of chemical attacks in different applications.

Compliant with AS/NZS standards
UV stabilised
IP 66
10 A to 50 A
3, 4 and 5 pin configurations
Chemical resistant white and chemical resistant orange options available
Wide range of back boxes, RCD covers and accessories

The ISO product range is designed, engineered and tested in Australia for Australian and New Zealand conditions and has been carefully crafted with rounded corners, which ensures there are no small crevices where dirt and grime can easily accumulate. Stand out features include padlocking and safety flaps for switches and sockets which guarantee the electrical safety of the users and the durability of the equipment.

Emergency signalling products

NHP has an extensive range of audible and visual signalling devices. Whether it be for general safety warnings, process control, fire or wide area evacuation alarms, NHP has the emergency signalling devices to suit your needs.



By helping our young people build resilience, self-belief and life skills, the Graeme Dingle Foundation's programmes empower them to succeed.

Our vision is for Aotearoa to be the best place in the world to be young.

Donate now to help create a better New Zealand for our tamariki and rangatahi.



dinglefoundation.org.nz



Get your copy of the new Allen Bradley Essential Components Selection Guide.

Contact your local Powerbase branch or your local NHP account representative.

NHP ELECTRICAL ENGINEERING PRODUCTS

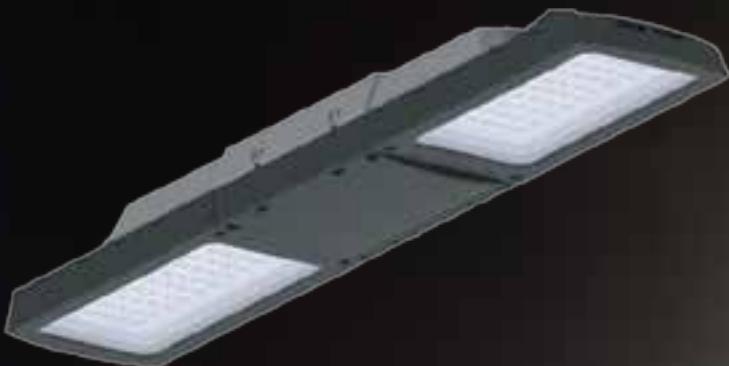


Authorised Distributor
A ROCKWELL AUTOMATION PARTNER

INTRODUCING CEAG ExLin / NE+

A linear LED engineered for use in Zone 1 and 21 hazardous areas.

CEAG ExLin / NE+ delivers longer life, improved efficiency and superior performance with a competitive payback vs. fluorescent fixtures.



Why CEAG ExLin LED?

Safe. Reliable. Efficient.

CEAG ExLin fixtures combine state-of-the-art LED technology with optimised thermal management and a time-tested enclosure to extend service life in extreme environments.

SUPERIOR PERFORMANCE AND EFFICIENCY

- Replaces 2x18W, 2x36W and 2x58W fluorescent fixtures, as well as low bay fixtures over 150W HID
- Rated life of 100,000 hours at 25°C based on L90C5 provides long term, low-maintenance operation
- Up to 120 LM/W provides up to 40% energy efficiency compared to traditional fluorescent fixtures
- Operating temperature from -40°C to +55°C

Crouse-Hinds
by EATON

Available through your Powerbase Branch

CSL
CUTHBERT STEWART LTD



PORABLE EX LIGHTING FOR ANY ENVIRONMENT



LED HEADTORCH

EX600

- ATEX & IECEx certified for Zones 0, 1 and 2 (Gas)
- Simple push button operation
- Tough, anti-static casing
- Adjustable anti-static head strap
- Battery compartment locking mechanism
- 50,000hrs LED life
- IP67 protected
- Powered by 3 x AAA batteries
- T4 temperature class
- Swivel head

RUGGED CONSISTENCY FOR THE EXTREME

LED RECHARGEABLE FLOODLIGHT

SARF300

- ATEX and IECEx Certified for Zones 1 & 2 (gas), 21 & 22 (dust)
- INMETRO Certified
- Lightweight and portable
- 12 Hour duration
- Light Output 1250/2000 lumens
- Unique protection system to cope with paint overspray

- Compatible accessory items available
- Maintenance friendly
- Low battery voltage warning
- Specialised charging system
- Waterproof and dustproof

STRONG AND VERSATILE DESIGN
FOR DIVERSE APPLICATIONS



LED AREA LIGHT

SAAL25/FR

- ATEX & IECEx certified for Zones 1 and 2 (Gas), 21 & 22 (dust)
- Light output 25,000 lumens
- -50°C to +50°C Operating Temperature
- Easily adjustable light head with secure positioning bolt
- Colour temperature 6000K+

- IP66 protected
- Toughened glass lens
- Durable construction
- Easy to move and carry
- Floor standing or securely fixes to scaffolding
- 5 year product warranty

HIGH POWERED 25,000 LUMEN LED
AREA FLOODLIGHT



Available through your Powerbase Branch

CSL

CUTHBERT STEWART LTD

KLEIN[®] TOOLS



Industrial tools built to last - see the full Klein Tools range at your local POWERBASE store

Tradesman Pro™ Tool Backpack, 39 Pockets, Black, 36 cm

CAT NO: 55421BP-14

- Tons of tool storage
- Hard, moulded front pocket for safety glasses
- Front zipper pocket for small parts and tools
- Taller bag and interior pockets allow for long screwdrivers
- Fully moulded bottom protects from the elements
- Orange interior for easy tool visibility
- 1680d ballistic weave for durability and water resistance



Tradesman Pro™ Tool Master Rolling Tool Bag, 19 Pockets, 57 cm

CAT NO: 55473RTB

- Load tested up to 113 kg
- 203.2 mm (8-Inch) wheels provide high clearance to easily roll over rough terrain
- Hard top that allows for stacking materials on top
- Heavy-duty handle for easy manoeuvring on the jobsite
- Total of 19 interior and exterior pockets for maximum tool storage
- 1680d ballistic weave for durability and water resistance



Tool Bag, Tradesman Pro™ Wide-Open Tool Bag, 42 Pockets, 41 cm

CAT NO: 55469

- Stay-open top for unobstructed tool access
- Orange interior and wider opening for easy tool visibility
- Large interior zipper pocket
- Fully moulded bottom protects from the elements
- Multiple exterior front and back pockets for quick access
- Shoulder strap with extra padding and handles
- 1680d ballistic weave for durability and water resistance



Classic Klaw™ Pump Pliers

- Unique jaw design provides multiple points of contact for maximum torque
- Compact, narrow design for easy work in small or hard to reach spaces
- Gripping surface with more specially hardened teeth for reduced wear and positive grip
- Extended grips for added comfort
- Available in a range of sizes - 187mm (7 inch) / 254mm (10 inch) / 305mm (12 inch)



CAT NO:
D504-7

CAT NO:
D504-10

CAT NO:
D504-12

SLAM-DUNK

Success for Kiwi Hoops

Dillon Boucher in action. 2012/13.
Image: photosport.co.nz

Change has been the name of the game for basketball in New Zealand in 2021.

Basketball in New Zealand has had its glory days. In the 1980s the NBL exploded behind a national televised game-winning shot from Kenny McFadden, and in 2002 the Tall Blacks put the country on the international hoops map when they made the top four at the world championships in Indianapolis. And nowadays, of course, we all beam with pride over the exploits of Steven Adams on the NBA stage.

But something significant has taken place at, shall we say, a less glamorous level over the back end of 2021. In the corridors of power, the boardrooms of change, a revolution has gone down. Basketball has had a leadership refresh, and made a succession of monumental breakthroughs in the commercial and funding sector.

Where do we start? The people are as good as any. Long-serving chief executive Iain Potter has stepped away from the top job, and been replaced by Kiwi basketball icon Dillon Boucher. It is a changing of the guard, observers note, made in hoops heaven. Boucher is young, progressive, ambitious and, most importantly, almost still dripping with the sweat of the sport on his brow. He's an NBL and Tall Blacks legend, with a history of over-achievement.

Many believe the sport could not be in better hands.

There has also been a change-out at the NBL, with another dose of youthful effervescence. Broadcaster Huw Beynon has come in to assume the reins of the leagues following the departure of go-getting, Mr Fixit General Manager Justin Nelson, who has jumped the fence to Sky TV.

But the new leaders have arrived at the right time. Following the announcement in August of \$1.35 million in funding (spread over three years) from Sport NZ to implement their Community Strengthen and Adapt Plan, Basketball NZ in December received an early Christmas present – a three-year \$3.3m support package from High Performance Sport NZ that will finally enable them to resource the national programmes at an effective level.

This would barely make a dent on the high-performance budget for, say, NZ Rugby, or NZ Cricket, but for basketball, which has been existing on around \$150,000-200,000 annual funding from the high performance coffers for an age, it is a comparative luxury.

"It's been a lot of years coming, and a lot of work has been put in by Iain and [high performance boss] Leonard King for a long time" reflected Boucher. "It allows Leonard and his team to put together a robust plan and strategy. It allows for some real development, some real focus areas, and the exciting thing is there will be some

opportunity in the 3X3 space to push this game to new heights."

The good news didn't stop there, either, for this sport of choice among Kiwi schoolkids. Just before the high performance windfall came the announcement of an historic five-year deal between Sky TV and the NBL – the most commercially lucrative the sport has ever had and allowing the league to forge ahead with certainty, financial clarity and a new women's setup that will deliver pay parity.

Boucher called the Sky deal a "coup" for Kiwi hoops and admits the confluence of events sees him take the reins of his sport at an unprecedented juncture. "My mission is to grow the sport. There was already some really good stuff in the pipeline when I came on board and hopefully I can add to that now, and we can continue our huge numbers coming through the community game and now put in place processes to make our Tall Blacks, Tall Ferns and 3X3 teams successful."

These are exciting times indeed for basketball. The sport's challenge now will be to ride these slam-dunk successes to even better places. ☒



Marc Hinton
Sports Writer

PHILIPS EYE COMFORT

Switch to light that's easy on your eyes.



Improving the comfort of your eyes could be as simple as screwing in a different lightbulb



Gone are the days where a simple batten holder with a 60W or 100W incandescent globe in the centre of a room is considered good enough. The proliferation of LED lighting at an ever more affordable cost has caused a revolution in how we light our spaces. And with it the focus is slowly but surely shifting away from purely functional lighting to the overall quality of lighting.

In recognition of these shifts in the lighting market, Philips Lighting has invested R&D in not just making better quality lighting, but lighting that is easier on the eyes.

To be Eye-Comfort standards compliant lighting products need to meet important criteria;

- flicker
- glare
- stroboscopic effect
- photobiological safety
- dimmable
- tuning / colour rendering

Flicker and Strobe

Some LEDs may appear to flicker or produce a stroboscopic effect. This could cause distraction, irritation and affect certain health conditions. In an industrial environment it is a well known danger around rotating equipment as well as contributing to a range of health conditions.

Glare

Some LED lights produce light in an uncomfortable glary way, where it is difficult to see due to the brightness of the light. This could cause visual discomfort and even headaches.

Photobiological safety

Concerning photobiological safety, our LEDs are not different from traditional incandescent lamps. They do not contain higher amounts of short wavelength light which can cause blue light hazard and fall well within safety standards.

Colour Rendering

Colour rendering refers to how well a light source renders colour, not all LED's are created the same, many lower cost LED lighting solutions are cheaper precisely because they do not render the environment in "full colour". EyeComfort LEDs have a high Colour Rendering Index, meaning that your home's furnishings appear in high definition and true colour.

Tunability

Many LEDs emit just one 'colour temperature' – such as warm white or cool daylight – which means you cannot change the mood in a room.

However, tunable EyeComfort LEDs allow you to adjust the colour temperature. That lets you select an invigorating cool light in the mornings for instance, or a cozy warm light at night.

Noise

Some people find that LEDs produce an irritating hum. This is caused by the way the bulbs use electricity to emit light. EyeComfort LEDs were designed to eliminate audible noise so that you can work, study and play without any distractions.

Dimmable

Some 'dimmable' LEDs of lower quality tend to flicker when you turn the light down.

Our EyeComfort LEDs use smart electronic design so that you can create the perfect ambiance and enjoy a gentle solution for your eyes. ☒



PIERLITE® EMERGENCY RANGE



POLO EMERGENCY BULKHEAD

- Colour Select 3000K/4000K/5700K, CRI80
- Maintained emergency with manual test
- IP65, IK08, Class II
- Operating temperature: -20°C to +40°C
- Back entry and side entry for easy installation

POL02-14W-EM
Ø350
14W, 1300LM
COLOUR SELECT

\$199.95

POL02-21W-EM
Ø430
22W, 2100LM
COLOUR SELECT

\$230.00



GUARDIAN EMERGENCY LIGHT

- Non maintained emergency with manual test
- IP20, Class II
- Twin adjustable head

GRLED7FL-L
4W, 600LM

\$125.00



STINGRAY EXIT LIGHT

- Viewing distance: 24m
- Suitable for ceiling mount and wall mount
- Maintained emergency with manual test
- IP20, Class II
- Complete with all pictograms
- Optional IP65 enclosure

STLED-L
WHITE
5W, 120LM

\$98.00

STTLED-L
BLACK
5W, 120LM

\$109.00



DECO EMERGENCY BULKHEAD

- 4000K
- Maintained emergency with manual test
- IP65, IK08
- Complete with daylight sensor

DECOLED4KMS-BK
13W, 1200LM

\$288.95



FIREFLY EMERGENCY LIGHT

- Non maintained emergency with manual test
- IP20, Class II
- D32 emergency classification

FFRLED2

White recessed,
Ø114 cutout
2W, 170LM

\$95.00

FFSLEDKITWH

White surface
mount kit

\$17.50

FFRLEDBK2

Black recessed,
Ø114 cutout
2W, 170LM

\$95.00

FFSLEDKITBK

Black surface
mount kit

\$17.50



DIRECTOR WALL EXIT LIGHT

- Viewing distance: 24m
- Suitable for wall mount
- Maintained emergency with manual test
- IP20, Class II
- Complete with all pictograms

DIRLEDPSL
5W, 220LM

\$125.00

MASER INDUSTRIAL PRODUCTS

For Hazardous Area and Intrinsically Safe Installations

Maser Communications is the leading cable distributor in New Zealand offering a wide range of cable and related product for local industry sectors. With their large locally stocked range of industry specialist cables, Maser can offer suitable solutions for industrial applications including Explosive and Hazardous areas.



Geoff Tennent
Maser NZ Sales Manager

How long have Maser been providing cable solutions into the NZ Industry?

Maser was established in Auckland in 1983 and is a NZ owned company with offices and warehouses in Auckland, Sydney, Melbourne and the UK.

What makes Maser a specialist cable supplier to the NZ Industry?

Apart from our extensive mainstream line of cables we can design and supply to our customer's requirements for those projects that require something unique to fit the application and standards.

What defines a Hazardous area that may require product made to relevant standards?

In electrical terms a hazardous area is where a fire or explosion hazard may exist due to flammable gases, vapours or ignitable substances being present on site.

What are some types of hazardous sites Maser have provided solutions for?

Maser have had a long supply history into the Oil and Gas Industry in NZ which is an area that requires a lot of cables to be compliant within the Hazardous or Intrinsically safe standards. Other common areas are Oil Tank and Petroleum storage sites and Chemical plants. Maser offer a full range of cables readily manufactured for use in these areas.

What makes a cable suitable for hazardous area installations?

Firstly in most instances the cable must comply with the Intrinsically safe standards. There are different parts to these standards that include not only electrical characteristics but also mechanical protection. These standards cover the required electrical characteristics of the cable to operate safely within an Intrinsically safe installation. Compliance to these standards prevents the cable being an ignition source within an area that may contain explosive substances. The electrical characteristics of the cable must be designed to limit storage of energy within itself that could cause ignition.

Cable armouring is also required in some hazardous area installs to provide suitable mechanical protection. The main type of armouring is Galvanised Steel Wire.

Intrinsically safe cables in hazardous areas are identified by having a Blue Outer Sheath.

Do Maser offer Cable Glands required in Hazardous areas?

Yes. Maser provide a range of IEC Ex rated glands for hazardous areas. ☑

MASER 
maser.co.nz

Maser offer the best range of SPECIALIST CABLES for SPECIALIST INDUSTRIES



Quality Cable solutions for:

Instrumentation

Industrial Process Control

Circular Power

Variable Speed Drive

Fire Rated Systems

Security & Access Control

Ex and ATEX Cable Glands



"Talk To The Cable Experts"

NOVARIS SURGE PROTECTION



**PROTECT YOUR POWER SYSTEMS WITH THE
INNOVATIVE AND PROVEN TECHNOLOGY FROM
NOVARIS SURGE PROTECTION**

Novaris NSP and **SDPV** surge diverter ranges cover your switchboard technology and solar panel systems

SDPV range - SOLAR

SURGE PROTECTION ALL MODE

- Imax = 50kA to 100kA
- Maximum Continuous Operating Voltage 1000V & 1500V Available
- Compact, yet high surge rated pluggable design, using minimum DIN rail width (only 3 modules)
- Economical and value packed
- Red/Green status indication and change-over contacts standard for remote monitoring

Part no: SDPV-50-1000

NSP range - SWITCHBOARD

SURGE PROTECTION 3+1 MODE

- Imax = 40kA
- Maximum Continuous Operating Voltage = 320V (AS/NZS3000 recommends at least 4 modules)
- Economical and value packed
- Red/Green status indication and change-over contacts standard for remote monitoring

Part no: NSP1-40-320-N and NSP3-40-320-N

Novaris

www.ellis.co.nz

ELLISCO
SOLUTIONS EXPERTS

The Moment Can't Come Soon Enough FOR SHAUN JOHNSON

After more than 1,200 days, the halfback will run out in a Warriors jersey once again next month, as the 2022 NRL Premiership gets underway.



Michael Burgess
Sports Writer

Johnson's return has been one of the biggest off-season stories, a homecoming tale with a Hollywood feel to it.

After his acrimonious departure in November 2018, it was impossible to imagine Johnson would be back at the Warriors one day. In professional sport there isn't room for sentimentality and the scars ran deep on both sides.

Back then the club didn't feel Johnson was living up to his million dollar contract and were disappointed with his muted display in the finals match against Penrith, the Warriors' first playoff game in seven years.

For his part, Johnson couldn't understand why the club was discussing his contract (and shortcomings) publicly while he was away on Kiwis duty in England, and felt he deserved more respect after his long service and a stellar 2018 season.

That relationship breakdown sparked Johnson's move to Cronulla, via an early release from his contract.

Whatever strategy the Warriors had for life beyond Johnson, it didn't work, as the team went backwards. The 2019 season was a mess, with Blake Green exposed without Johnson outside him, while Kodi Nikorima wasn't consistent enough.

It was another 'what might have been' scenario. Instead of building on the impressive 2018 campaign (15 wins, two points off the minor premiership) the Warriors fell in a heap.

The past two years are harder to judge due to the Covid chaos, but poor game management has been a recurring theme, which compelled the Warriors to approach Johnson last year.

It's often said you should never go back, but the move makes sense for Johnson.

The abrupt ending to his Warriors career didn't feel right and now he has a chance to write another chapter.

If everything goes to plan, Johnson (162 matches) could become just the fifth player to achieve 200 first grade games for the Warriors, after Simon Mannering, Stacey Jones, Manu Vatuvei and Ben Matulino.

The 31-year-old will also encounter a more sympathetic fanbase and media, without the sky high expectations of his first stint.

Along with a commercial boost, the club gain an experienced playmaker and much needed leadership in the spine, with the youth of Reece Walsh, Wayde Egan and Chanel Harris-Tavita.

Johnson also makes things happen. He may not have the blinding acceleration or magic feet of his peak years (Johnson scored six tries in the last three seasons, compared with 37 between 2013 and 2016), but he remains a danger inside the opposition 22.

He has a superb kicking game, an assured passing range off both sides and the vision and guile to test any defence. By his own admission, Johnson has "grown up" during his Cronulla stint, taking on a leadership role in a Sharks' squad packed with hardened professionals.

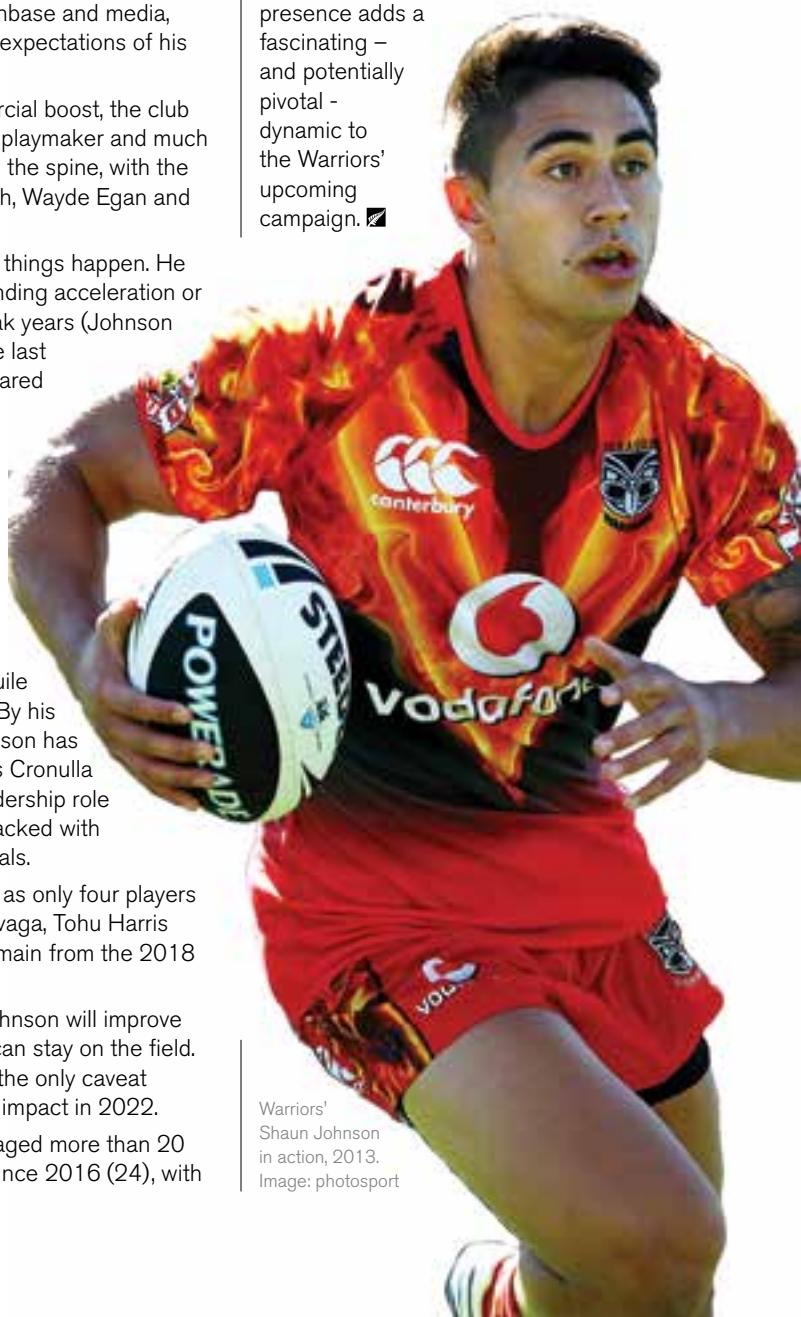
And it's a fresh start, as only four players (Bunty Afoa, Jazz Tevaga, Tohu Harris and Harris-Tavita) remain from the 2018 Warriors' team.

There is no doubt Johnson will improve the Warriors – if he can stay on the field. His physical state is the only caveat around his expected impact in 2022.

Johnson hasn't managed more than 20 games in a season since 2016 (24), with

18, 16 and 10 matches respectively in his three Cronulla campaigns.

The Hibiscus Coast junior has been relatively durable across his 11 season NRL career, but injuries have taken their toll. But assuming his body holds together, Johnson's presence adds a fascinating – and potentially pivotal – dynamic to the Warriors' upcoming campaign. ■

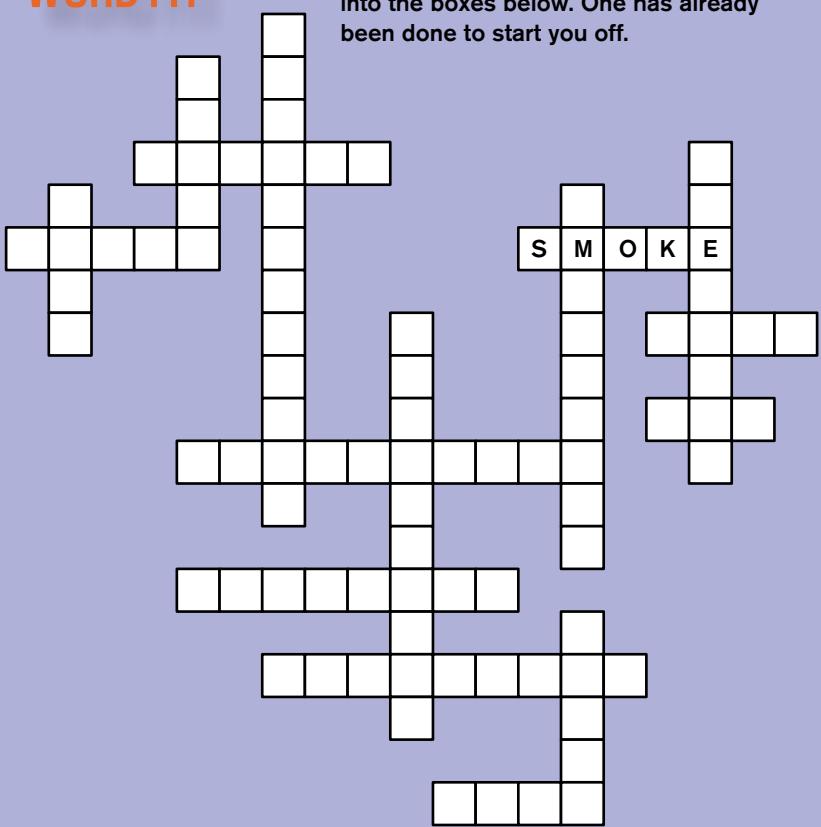


Warriors' Shaun Johnson in action, 2013.
Image: photosport

SMOKO BREAK

WORD FIT

Fit the words about hazardous sites into the boxes below. One has already been done to start you off.



3 Letters
Gas

3 Letters
Fire
Safe
Zone

5 Letters
Motor
Power
Smoke

6 Letters
Surge
Switch

8 Letters
Chemical
Lighting

9 Letters
Emergency
Hazardous

10 Letters
Electrical
Protection

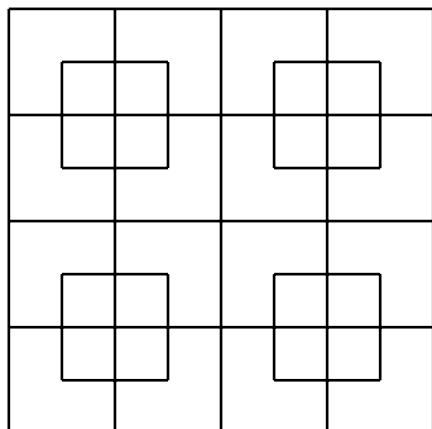
12 Letters
Installation

Answers found at www.marketplacemagazine.co.nz/smokobreak

For T&C's please refer to our website
www.marketplacemagazine.co.nz/terms-conditions

SQUARES

How many squares can you find in this picture?



SCRAMBLED

Keep it up with - Hazardous Sites. Look carefully at the jumbled words and try to unscramble as many words as you can.

GOETYHCONL

SEWSRLIE

PEUREETTARM

OUADRLM

NCAICMLOEP

MAUIELINR

TOETINROCP

OSSNESR

TIUOLOPNL

GSNUATIELRO

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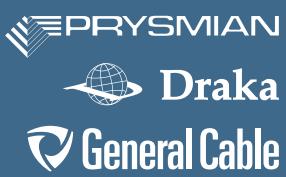
FIRSTFLEX
INDUSTRIAL ELECTRICAL CABLE
AND COMPONENTS



We have all your cable needs in hand with our global connections

Given the supply & demand issues we all face in this current climate, we are strongly positioned to offer the widest possible range of products, services, technology & simple know-how due to our global connections. **Ensuring customer service is within easy reach, contact us today for a solution focused result!**

Prysmian Group



Prysmian Australia & NZ

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Product specifications,
contact Prysmian: prysmiancable.co.nz