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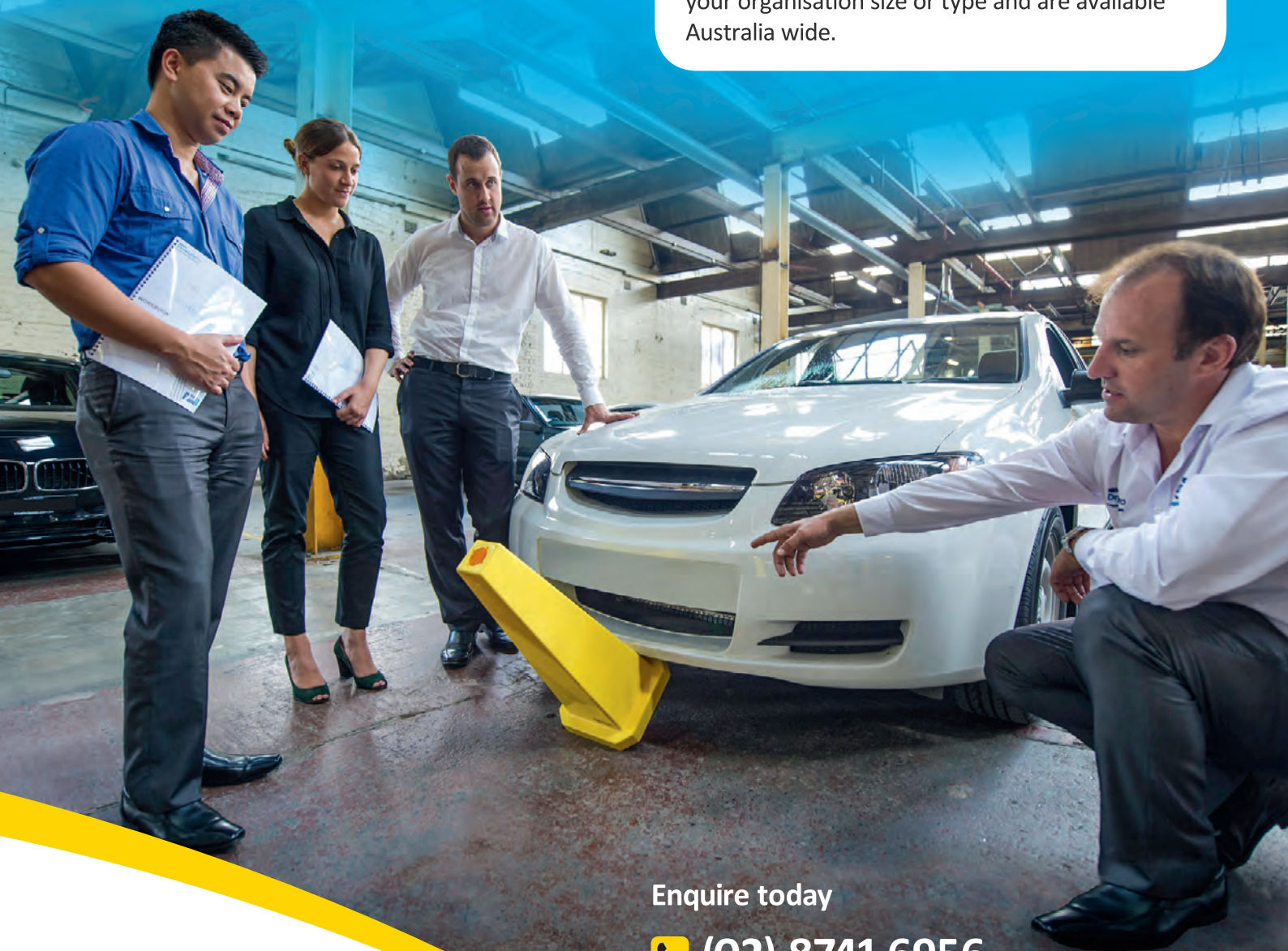CONSTRUCTION
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FEBRUARY/MARCH 2015

CONTENTS

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MODERN CYBORGS

GOING WHERE ONLY SCIENCE FICTION DARED TO VENTURE

*Markus Aleksy, Elina Vartiainen, Martin Naedele**

Humans exhibiting enhanced capabilities through the use of implanted computers and electronics - otherwise known as cyborgs - have long been standard fare in popular science fiction movies and stories. This idea is no longer confined to creative Hollywood minds but is gradually finding its way into industries where it is proving to be very effective in terms of plant maintenance and personnel safety.
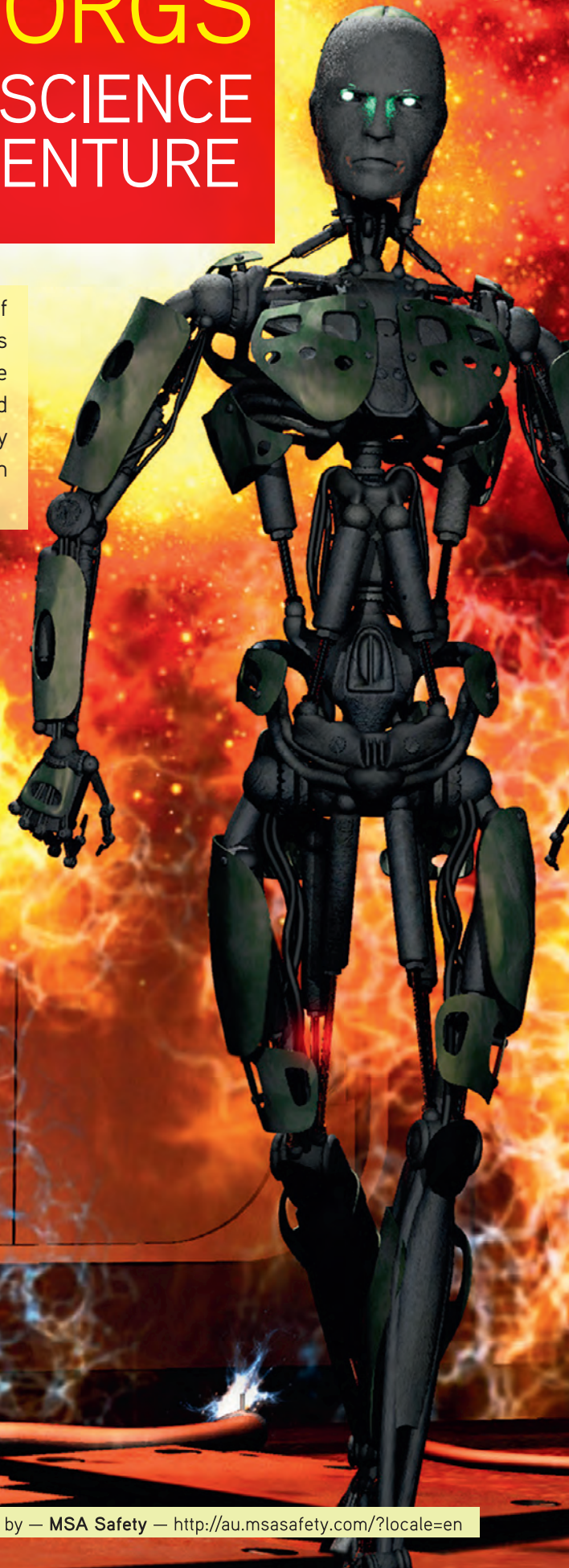
Building on recent advances in mobile computing and sensor technology, the concept of wearable computing combines these technologies to produce invisible sensing devices that are capable of providing accurate information about the very often complex environment in which they operate. ABB has looked at how industrial environments, and in particular the service industry, can benefit from wearable computing solutions and solutions combined with augmented reality. The science fiction of yesterday has become the technology of today.

Recent advances in mobile computing and sensor technologies have enabled innovative solutions in the form of mobile apps and wearable computing. Mobile devices, such as smartphones and tablets, allow information to be quickly and cheaply accessed, processed and communicated without being confined to a single location. Sensor technologies can measure information in a particular environment and transmit the data to a mobile device for closer inspection. Modern and rugged mobile devices, equipped with different types of sensors (eg, light sensor, gyro, GPS, Wi-Fi and accelerometer) and extended functionality are proving very useful in industrial environments.

Wearable computing takes the combination of mobile devices and sensors to a higher level by making the computer invisible (it is embedded into clothing or everyday items) and always on [1]. Though not an entirely new concept, costs and technical reliability were serious obstacles to the widespread practical implementation of wearable computing in the past [2]. A full-scale wearable computing solution consisting of a head-mounted-display (HMD)-based augmented reality (AR) and hand-gesture-based interaction was expensive. However, the popularity of mobile apps and the availability of advanced mobile technologies have now enabled the development of more affordable applications that provide field personnel with timely, accurate and detailed information on the move.

Supporting service efficiency

Proper service is vital in ensuring that industrial plants are safe to work in and operate without unexpected shutdowns. While the servicing of a particular device or system area may be routine to experienced service engineers, complex cases often mean additional and up-to-date information, such as customer products, application domains, the history of the installed equipment and service procedures and processes is required to support problem-solving and reduce the impact on the rest of the plant. The quicker this information can be accessed, the faster the problem can be solved. Therefore, the instant availability of up-to-date information is a vital prerequisite in any business environment today.

In global operating enterprises, this information is stored in many databases of the enterprise information technology infrastructure. ServIS, ABB's installed base information system, is an example of such an enterprise information system that keeps track of all ABB products and systems at a customer site, including technical and project details. It is integrated with other ABB information systems, such as ABB Product, ABB People and the global customer identification system.

Using mobile and wearable systems, such as HMDs, eyeglasses or contact lenses, to access installed base information provides an opportunity for more efficient service delivery and execution. These systems could be used to:
• Locate industrial equipment in large plants: AR can be used to overlay a real-world view of the plant with information related to the location of the equipment. The current location of the worker can be obtained via a GPS sensor built into a mobile device

Image 1: Industrial environments are benefiting from wearable computing and augmented reality solutions to improve plant maintenance and ensure personnel safety.

while the GPS position of the equipment can be loaded from an installed base management system such as ServIS.

- Identify industrial equipment: Advanced identification and labelling techniques, such as barcodes and NFC- or RFID-based tags (near-field communication or radio-frequency identification) can be used to identify equipment. The data read from the barcode or tag can be used to request further information from backend systems, such as ServIS.
- Access different types of information: As well as being able to access information such as previous service reports, technical drawings, manuals and checklists, field service workers could access the process control system of a plant to view real-time values of different process devices without being confined to a single location. Moreover, AR features could be used to overlay real-world images with work instructions or equipment or safety-related information [3].
- Situational awareness: Recent environmental changes or updates affecting service execution can be directly pushed to the service worker via wearable devices (eg, wristwatch displays and smart watches) in a non-intrusive way.

- Monitor work quality and documentation: Cameras and microphones could be used to continuously collect information (eg, sound recordings or movies) for plant analysis and auditing. Video recordings of work demonstrations can help to improve the quality of the work [4, 5].
- Seamlessly integrate the worker: Mobile and wearable solutions would enable the seamless integration of field service workers into service processes, allowing asset information to be retrieved and updated instantly. Moreover, they could enable service workers to connect to remote diagnostics and optimisation applications, or expert systems hosted by either backend systems or in a cloud environment.

Increasing safety

In industrial working environments, field service engineers face different types of hazards. A wearable system that can sense, collect information and issue warnings about the environment around it - such as temperature, humidity, oxygen level, poisonous gases, noise or radiation - as well as the vital signs of the wearer - such as heart or pulse rate, tiredness, consciousness and cognitive load or stress level - would

increase the safety of maintenance and service staff [6]. Existing wrist-worn devices, such as Basis B1, can already measure skin resistance, pulse rate, temperature and even the worker's stress level.

Wearable systems can support rescue and self-rescue operations. They can warn personnel of impending dangers, such as fire, water or lack of breathable atmosphere, and direct them to safe escape routes, even if exit signs are not available, are broken or are invisible because of the smoke and fire. Additionally, rescue teams can utilise the location functionality of such devices to locate personnel still in the plant.

Solutions

ABB provides various solutions that can be used on mobile devices:
- The Ventyx Service Suite enables field operators to maintain assets and reduce costs.
- The Ventyx Shift Operations Management System (eSOMS) ensures the safe, efficient and reliable operation and maintenance of facility assets.
- The Ventyx Advanced Work Management (AWM) Mobile Inspector collects and manages data relating to all physical assets. In addition to these, several prototypes

Image 2: The mobile app for displaying the values of the sensors embedded in safety clothing.

Image 3: The prototype for demonstrating how devices can be localised within a plant or factory to provide more information.

have been successfully developed in the search for new ways to implement mobile and wearable computing. In one prototype, sensors were sewn into a high-visibility vest, which was then operated via a smartphone. The sensors collected environmental conditions (carbon monoxide level, temperature and humidity) as well as the vital signs of the worker (heart rate and skin temperature) - see image 2. They were complemented with feedback devices, such as a vibrator and speaker as well as an emergency/panic button. All the components were connected via a body area network (BAN) to a microcontroller[7]. The wearable safety suit could be connected via Bluetooth to the smartphone, which runs a control app to collect sensor data, display alerts and send notifications to a remote control centre and/or a supervisor when abnormal conditions are detected. The corresponding messages contained GPS coordinates of the last loca-tion of the field service worker, allowing him to be quickly located.

Another project investigated the possibility of using AR for control systems in industrial environments. In AR, live images are shown on the camera display of, for example, a mobile device and this view is then augmented by computer-generated content (eg, graphics). Several prototypes have been produced including one where a maintenance engineer points a mobile device at a water tank. After identifying the tank, the camera display is then augmented with live status values - see image 3.

In another prototype, AR and sensor technologies were combined by adding a sensor to measure the temperature of an object. When the camera view of the mobile device is directed towards the object, the display shows the object's temperature trend over time. The ability to view historical data enables engineers to perform fault trac-ing and testing during maintenance work. A third prototype demonstrated how equipment can be found and identified within plants and factories. Mobile devices with sensors can determine the location of a field technician and from this immediately identify and provide information about devices in the vicinity - see image 4.

The availability of a variety of personal and mobile computing technologies has enabled the creation of new support tools for field service tasks. Using off-the-shelf components, important environmental, health and process information can be instantly obtained and shared with others while the engineer is on the move. 🅂

References:
[1] T. Kieffner. (Accessed 2013, June 19). Wearable Computers: An Overview [Online]. Available http://misnt.indstate.edu/harper/Wearable_Computers.html [2] V. Stanford, "Wearable computing goes live in industry," IEEE Pervasive Computing vol.1, issue 4, pp.14–19, 2002. [3] S. Henderson and S. Feiner, "Exploring the Benefits of Augmented Reality Documentation for Maintenance and Repair", IEEE Transactions on Visualization and Computer Graphics, vol. 17, issue 10, pp. 1355–1368, 2011. [4] D. Roggen et al., (2013): "Opportunistic Human Activity and Context Recognition," IEEE Computer vol. 46, issue 2, pp. 36–45, 2013. [5] F. Naya et al., "Workers' Routine Activity Recognition using Body Movement and Location Information", Proceedings of the 10th IEEE International Symposium on Wearable Computers, Montreux, Switzerland, 2006. [6] A. Pantelopoulos and N. G. Bourbakis, "A Survey on Wearable Sensor-Based Systems for Health Monitoring and Prognosis", IEEE Transactions on Systems, Man, and Cybernetics – Part C: Applications and Reviews, vol. 40, issue 1, pp. 1–12, 2010.
Footnotes:
[7] The researchers used e-textile technology for the integration of the sensors and microcontroller inside the safety suit.

Wireless monitored safety showers

Safety showers and eyewash stations are a common sight in many facilities. Rapid access to flooding water can be the difference between mere skin irritation and a fatal injury.

Legislation requires that safety showers are placed close to hazards and are easily identified so that if an incident occurs, the injured person can quickly reach these sanctuaries.

Wireless can help users respond faster and provide first aid sooner. By combining a WirelessHART digital transmitter with one or two latched switches, every safety shower and eyewash station can be retrofitted with a wireless monitoring system reporting any activation back into the user's control room.

Wireless instrumentation allows for the solution to be implemented quickly and without investment in local power sources, cabling and any associated engineering design work. The equipment simply bolts onto existing showers without cutting into any plumbing. This is claimed to be a vast improvement over the various battery-powered flashing lights, plumbed flow switches and instrument cabling solutions that have been implemented in the past.

Emerson Process Management
www.emersonprocess.com.au
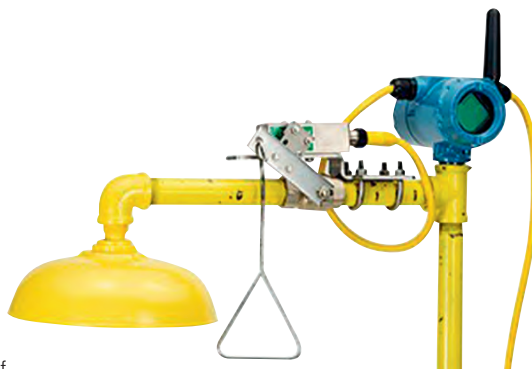
Intrinsic safe isolators

NHP has been appointed the Australia/New Zealand distributor for GM International, which is based out of Italy and a specialist manufacturer of intrinsic safe isolators to support field devices in hazardous areas.

Used in hazardous area applications, intrinsic safe isolators are typically used between PLC or DCS systems and field devices. Their purpose is to ensure that electrical circuits that have low power requirements such as instrumentation, sensors and limit switches, don't carry enough energy to create a spark sufficient to ignite an explosive environment.

The GM offering includes a wide range of intrinsic safe isolators to suit 4-20 mA analog devices, digital devices with up to 8 channels per isolator, and specialty isolators for communications wiring, load cells, temperature measurement devices and more.

NHP Electrical Engineering Products Pty Ltd
www.nhp.com.au
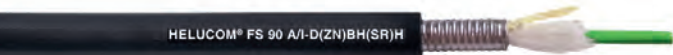
Fire-safe cable range

Treotham Automation has launched the Helucom FS90 fire-safe cable range, a fibre-optic cable that ensures data communication is upheld for 90 minutes even in the event of a fire.

The range is suitable for tunnels, underground train tunnels, computer centres, in mining and in all other environments in which signal transmission must be ensured in the event of fire.

Based on the IEC 60331-25 standard, the cable has been tested for the purposes of function and data transfer under the influence of flames of 750°C for more 90 minutes.

The maximum damping increase was maintained at E9/125 μm 0.12 dB in single mode and G50/125 μm 0.27 dB in multimode.

At the same time, the range meets the standards IEC 60332-1 + 60332-3, flame resistance, IEC 61034 smoke/gas proof, IEC 60754-2 halogen freedom and EN50267-2-3 corrosiveness.

Four different cable types are available as standard inventory: 4 G50/125 μm OM2 (803917), 12 G50/125 μm OM2 (803918), 4 E9/125 μm G652.D (803919) and 12 E9/125 μm G652.D (803920).

Treotham Automation Pty Ltd
www.treotham.com.au

Camera system for mobile machines

The O2M camera system from ifm efector is suitable for monitoring mobile machines. Featuring an encapsulated, weatherproof aluminium housing with IP68/IP69K, the system also has temperature-controlled lens heating, automatic brightness adjustment and light sensitivity of <0.25 lux. With high shock and vibration resistance, it also holds the E4 type approval. Additionally, the system is fitted with an analog video output and is suitable for universal use.

The system can, for instance, be directly connected to the PDM360 dialogue modules with graphics capabilities, colour display and analog interface. This makes it possible to use the dialogue module not only to display machine information but also images of up to two cameras. Therefore, a separate monitor is not needed.

The system is available with a selection of flexible mounting accessories to provide universal installation and application options.

ifm efector pty ltd
www.ifmefector.com

Handheld thermography cameras

Designed to help streamline thermal inspections for intensive electrical, mechanical and utility predictive maintenance programs, the T-Series range of handheld thermography cameras includes the updated T420 and T440 with 320 x 240 thermal resolution, and the T620 and T640, both of which provide thermal resolution at 640 x 480 (307,200) pixels. Every model includes FLIR's patented MSX enhancement that highlights thermal images with key visible details in real time for easier recognition.

The cameras provide flexible ergonomics, fast communication from the field and a holistic thermal imaging solution. A major advantage is FLIR's rotating optical block that lets users easily aim overhead, under equipment and from other tough angles while keeping the large LCD in comfortable view. To help reduce fatigue even more, all of the T-Series cameras include Auto-Orientation, which automatically keeps on-screen temperature measurement data upright for easier viewing whether the camera is framed for landscape or portrait imaging.

The T-Series features touch-screen tools to: access menus, add temperature measurement spot meters and area boxes, change colour palettes, set parameters and switch imaging modes, for example. The T620 and T640 feature a capacitive touch screen for navigation and the keypad buttons on all of the models have been optimised to make it easier to activate the interface with gloves on.

These advancements complement other benefits that FLIR T-Series cameras already have, including fast Wi-Fi communication that connects cameras to Apple and Android devices. Using the free FLIR Tools Mobile app, thermographers can import, analyse and share images and reports immediately directly from the inspection site. In addition, the app can stream live video to nearby devices for safer monitoring. Wireless connectivity also extends to FLIR MeterLink test instruments that can send readings directly to T-Series cameras via Bluetooth, automatically embedding electrical load and other critical data into radiometric thermal images as they're captured.

FLIR Systems Australia Pty Ltd
www.flir.com.au

WORKING AT HEIGHT AND IN CONFINED SPACES

Gordon Cadzow, Association Secretary of WAHA

Falls from height continue to compromise workplace safety in all industries. Safe Work Australia recorded 19 deaths by work-related falls from height for the period January to October 2014 - second only to vehicle-incident fatalities.

While industry standards are well known and encourage a higher focus on safe work practices to avoid falls from height, there are many other risks associated with workplace safety which require working-at-height skills but do not attract the same level of legislative attention.

One of these high-risk areas is that of work required in or around a confined space. There currently exists much inconsistency in regulations across state boundaries even with regard to the definition of what constitutes a 'confined space'. Victoria and Western Australia have their own individual definitions, while all other states are served by a different single definition. This causes general confusion across all industries and end users.

OHS officers working for national companies may be required to change their safety methods from site to site to comply with regulations in each jurisdiction. This is further complicated where a company is based in a town on a state border, such as Mildura, which borders New South Wales, Victoria and South Australia. For example,

in the Victorian definition, 'engulfment' is considered only applicable to dry product such as sand. In other states, engulfment includes liquids.

WAHA (Working at Heights Association) was formed when it became increasingly clear that there were a number of industry segments that were critical in improving the safety of people working at height. These cover equipment manufacturers, distributors and installers as well as specialist training companies. The association has a continuing focus to improve the safety of workers through awareness, education and the use of correct equipment. Increasingly, this work includes work in confined spaces, which is closely aligned with safe working at height due to the nature of accessing the space.

While working at height safety issues are generally regarded as being 'above ground', many similar issues are faced by workers needing to access and exit confined spaces safely, including accidental access to confined spaces, such as falling in a trench.

In November 2013, farmer Simon Coster from Cloverlea near Warragul, Victoria, was

critically injured when overcome by toxic fumes on entering a farm tank to clean it. His two sons, two more farmhands and three emergency workers were also overcome when they tried to rescue him. Rescue was only effected once a hole was cut in the side of the tank.

Luke Dam, confined space specialist and chairperson of the WAHA Confined Space category, says that this case clearly demonstrates an urgent need for better understanding of the risks and procedures required for working in confined spaces.

"Confusion over which code is applicable makes it easy to disregard the dangers and neglect to initiate even a basic rescue plan, which was clearly missing in this case. Increased knowledge of and compliance with safety regulations and standards makes it easier for employers and workers to adopt and enforce if national regulations, codes and standards are applicable. We believe strongly that a standard definition for confined space legislation should be sought."

There is also the issue within the industry of a general misunderstanding of the hazards associated with confined space. For example, standard 4-gas detectors are often used by workers working in confined space which test for the four main gases, being oxygen (O_2), combustible gases (%LEL), hydrogen sulfide (H_2S) and carbon monoxide (CO). However, different industries and processes may produce different types of toxic gases which standard gas detectors do not detect. For example, breweries use carbon dioxide, so separate detection systems are required to ensure they are safe to enter.

WAHA represents the interests of all those involved in providing products, services or advice relating to safe working at height, requiring the highest standard of skill, integrity and responsibility of all member companies. The association members actively work together to highlight and address key issues and work towards solutions to reduce the number of injuries and fatalities resulting from people working at height, both above ground and in confined spaces. It continues to drive compliance in the areas of equipment design, equipment selection, use and maintenance, as well as management and operator competency.

For further information about working safely at height or within a confined space, visit www.waha.org.au or contact the association secretary, Gordon Cadzow, at secretary@waha.org.au. Ⓢ

A guide to confined space legislation in Australia		
QLD/NSW/ACT/SA/TAS/NT Section 274 of Work Health and Safety Act (2011)	Victoria OHS Act (2004) and OHS Regulations (2007)	Western Australia Regulation 3.82 of the OSH Regulations (1996)
An enclosed or partially enclosed space that is: • Not intended to be occupied by a person • Designed or intended to be at normal atmospheric pressure while a person is in the space And is likely to have a risk to health and safety from: • An atmosphere that does not have a safe oxygen level • Contaminants • Engulfment	Any space or partially enclosed structure that: • Is intended to be or likely to be entered by any person • Has limited or restricted means of entry and exit • Is intended to be at atmospheric pressure while any person is in the space And contains or is likely to contain: • An atmosphere that has a harmful level of any contaminant • An atmosphere that does not have a safe oxygen level • Any stored substance except liquids that could cause engulfment Does not include shaft, trench or tunnel that is a mine or part of the workings of a mine.	An enclosed or partially enclosed space that: • Is not intended or designed primarily as a workplace • Is at atmospheric pressure during occupancy • Has restricted means for entry and exit And has either: • An atmosphere containing or likely to contain potentially harmful levels of contaminant; or • Likely to have an unsafe oxygen level; or • Could contribute to the person in the space being overwhelmed by an unsafe atmosphere or contaminant. Regulation 3.85 of OHS Regulations (1996) reference compliance with AS2865.

LIFE CAN CHANGE DRAMATICALLY
IN THE BLINK OF AN EYE

Organised by Spinal Cord Injuries Australia (SCIA), the Teamsafe workplace safety and injury prevention program presents a human face on why following safety processes based on participation, facilitation and empowerment is so important. Now working as a Teamsafe coordinator at Spinal Cord Injuries Australia, David Crawford shares the workplace experience that dramatically changed his life in the blink of an eye.

At age 27, David Crawford was an avid soccer player, surfer, golfer and tennis player; he was also in the midst of a successful career in the building industry.

Working on a roof at a Sydney building site, David questioned the way the roof was being designed but was told it would be fine - nothing to worry about.

But those supposed worry-free times would soon be a thing of the past.

"I was walking across the rafters when one of them suddenly gave way and I fell about four metres to the ground," he said. "I was actually lucky not to have been killed because I landed right beside a row of exposed tree stumps."

The fall damaged David's C6/C7 vertebrae - he had to learn to live with quadriplegia and rely on a wheelchair for mobility.

The incident sparked a major review of building-site safety and prompted new regulations covering scaffolding, harnesses and roof railings in New South Wales.

That was 25 years ago, and David's life is radically different today from that of his 27-year-old self.

"I retrained as a building supervisor and also got drafting qualifications, but I came up against enormous barriers in gaining employment in the building industry," he said. "The physical and emotional trauma of my accident also created a lot of uncertainty about my future."

In the midst of all this, David embarked on an extensive personal rehabilitation program. With the assistance of personal trainers he underwent an exercise and weight training program, hydrotherapy, acupuncture and alternative therapies.

In 2006, David heard that Spinal Cord Injuries Australia (SCIA) had set up Teamsafe, a workplace safety and injury prevention program. He didn't hesitate to become one of its ambassadors and is now also its coordinator.

The Teamsafe program is designed to complement an organisation's work health and safety (WHS) program by presenting powerful messages on the importance of workplace safety and watching out for your workmate's safety. From the perspectives of those who have experienced life-changing injuries and have first-hand knowledge, David and his team of ambassadors share their personal stories and the experience of living with a disability. They put a real-life, human face on why following safety processes based on participation, facilitation and empowerment is so important. The most important message is "if you are unsure it's safe, stop and reassess", said David.

The presentations also reiterate an organisation's WHS focus and address complacency and the need for change. David acknowledges that change isn't always easy - but reinforces that reluctance to do things differently can come with a big human price tag.

Board directors, all levels of management and workers are encouraged to participate in the Teamsafe presentations. This is particularly important as the goal is to help employers meet their WHS obligations, maintain a safety focus at work and at home, reduce workers compensation costs, avoid downtime and retraining costs, and help prevent the pain of injury and death that is felt by workers and their loved ones after a workplace incident.

The presentations last for 60 minutes and can be adapted to groups of all sizes and to meet organisational and site logistical and operational requirements. They also include a question and answer session where participants can ask any questions they have about workplace safety or living with a disability.

David and his team have presented to all types of industries such as aviation, construction and infrastructure. Some of the organisation's clients include: Roofsafe Industrial Safety, Tycen Demolitions, Qantas, GIO, Air Services Australia, Holsworthy Army Base, Sunset Coast Water, CFMEU, BHP Billiton, BlueScope Steel, John Holland Group, Leighton Contractors, Sydney Water, Australian Aerospace, United Group, Built, Fulton Hogan and ITS Trenchless.

Teamsafe also helped Sunset Coast Water win the 2008 ExxonMobil Award for Excellence in Occupational Health and Safety (OHS) at the annual National Safety Awards of Excellence.

"WHS is not about being lucky or unlucky; it is about management and workers taking preventative action. Life should not need to change in the blink of an eye before safety becomes a priority," said David.

For more information on how Teamsafe can help your organisation, free call 1800 819 775, email teamsafe@scia.org.au or visit www.scia.org.au/injury-prevention-teamsafe.

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Controlled descent device

Capital Safety has launch the redesigned DBI-SALA NoWorries Double Stop Descenders. Belonging to the Rollgliss Technical Rescue range of products, the descenders have been upgraded for improved performance and tested to multiple standards to increase the descenders' certification and use criteria.

Enhancements include: a more comfortable and ergonomic handle, smoother operation in descent, lower co-efficient of friction when up-hauling/belaying or using the device within a progress capture system and increased efficiency when used on a slope or with lighter weights. Additionally, testing to multiple standards has increased the descenders' certification, ratings and use criteria. Constructed from aircraft-grade aluminium, the descenders are stronger and lighter, now featuring a 300 kg working load limit and an improved maximum descent of 200 m. Available in two models to suit either 10.5 to 12.0 or 12.5 to 13.0 kernmantle rope, the controlled descent devices are suitable for working-at-height or rescue applications.

Capital Safety Group (Australia)
www.capitalsafety.com

Overhead crane system

The Konecranes ATB AirBalancer is an overhead crane system designed to make loads up to 350 kg feel almost weightless. The system is engineered in electric crane capacities up to 5 tonnes to suit the different lifting needs of diverse industries.

Using a floating load unit, the system harnesses air pressure as the power source to make light lifting safer, easier and smoother. The system is designed to prevent overloading and provide uninterrupted three-dimensional movement with no jerky motions while lifting or lowering. The technology is also claimed to be able to reduce the risk of accidental load damage or dropping.

Suitable for lifting fragile items, the system can be used in many industry applications including: manufacturing, solar energy, automotive, railroad and heavy vehicle maintenance, aviation, healthcare, and food and beverage. Features include: uses pneumatic control technology; fast lifting/lowering speeds up to 2000 mm/sec; can be tailored to specific needs with features such as proportional control balancing control, balancing control for fixed load weight, dual load balancing, triple load balancing and automatic load detection or a combination of required features; has a versatile range of grab devices.

Konecranes Australia
www.konecranes.com.au

Safety handrail

The Edge safety handrail range from Superior is designed to protect workers and the public from ledges, holes, traffic, heights and other hazards. Available in two versions, Edge I is designed for industrial use with a top, mid and kick rail and moulded endcaps; and Edge II is a designer version with curved posts and eight pipe rails for an aesthetic effect.

Suitable for temporary or permanent barriers for events, construction sites, walkways and marinas, the range is made from medium-density polyethylene, is UV resistant, will not corrode and the rails are fully recyclable. It also meets Australian and New Zealand standards and can be installed in minutes. The hand rail inserts are available in aluminium as standard, with options in powder-coated steel or stainless pipes. The kit comes complete with end caps to seal out any water or debris from building up inside the product. The stanchion has been tested through a rigorous R&D development program including an FEA analysis.

Designed and made on the Gold Coast using Australian raw materials, the system uses an overlapping offset of the handrail end caps that allows the product to flex when used on floating surfaces. The rotomoulded posts are claimed to be lighter, durable and quicker to install than traditional aluminium, steel or stainless steel equivalents. It can also be custom designed and colour matched to suit an industrial or commercial project. Features include: odourless and inert; rust and corrosion resistance; lightweight construction; uses minimal bolts to secure in place; quick adaption of kick rail using four bolts; good resistance to fuel and acidic conditions; seamless construction; and UV 11 rating High UV. The Edge railing product was recently installed at the Moolarben Coal Operations to provide handrail protection for a floating walkway for personnel to access water monitoring equipment.

Superior
www.superiorjetties.com

Giving a lift to Darwin's hire equipment

Officially launched and commemorated with plaque in November 2014 by the Hon Minister John Elferink MLA, Northern Territory Attorney-General, Darwin, hire equipment firm Top End Access has taken delivery of a Genie SX-180, a self-propelled boom lift capable of telescoping to 56.7 m working height. The boom lift is now available for hire and is said to be the first Genie SX-180 boom lift to be ordered by and delivered to an Australian company.

The Genie SX-180 is the highest reaching boom lift made by the Seattle-based Terex Aerial Work Platform. It has been under development for a number of years, and in mid-2014 became a reality.

Terex Aerial Work Platform Sales Manager Michael Scott said, "This is a landmark moment for Genie in Australia, for Top End Access and for the Australian equipment hire industry in general. Now, users will be able to go higher than ever before using a self-propelled boom lift.

"The Genie SX-180 boom lift is ideally suited for a huge range of industries - construction, maintenance, telecommunications, gas and oil refineries and large utilities. It also has a wide working envelope giving it unique versatility."

Top End Access General Manager Geoff Guy said, "The Genie SX-180 boom lift fits in perfectly with Top End Access's motto of 'Get Higher, Safer, Sooner'. With its unique features, it will enable users to do just that. And to get some idea of how high it can go, its reach is around the same height as Northern Territory House.

"We expect the SX-180 boom lift to be utilised quite vigorously by local mining and construction operations, but its use is not limited to just those two sectors. Our SX-180 boom lift is now ready for hire, and we anticipate interest from many areas - where getting safe access to great heights is required," Guy said.

Genie
www.genieindustries.com.au

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PRODUCTS

Work platform

The Tadano Mantis Work Platform is a personal lifting device that is designed to allow operators to safely work at height. The platform has a load capacity of 340 kg with the deck measuring 1828 x 914 mm and the work platform includes a 428 kg test weight. It has been designed to be compatible with every model in the Tadano Mantis crawler crane range, which comprises nine models from 27 to 120 tonnes.

The platform is attached to the end of the crane's first section of fly jib with a series of pins and a purpose-designed and certified adaptor. Once fitted, the work platform is ready for work and is operated from the crane cab using normal crane controls in response to instructions from workers on the work platform. These can be communicated by hand signals or two-way radio. Made from heavy-duty all steel construction with a self-levelling capability, the platform also features a swing-in entry door, non-skid floor, interior hand rails, tool storage racks, D rings for attaching safety lanyards and an all-round 150 mm toe hold.

Tadano Oceania
www.tadano.com.au

Back-up fall arrest device

Capital Safety has launched its DBI-Sala Rope-Safe Rope Grab. Belonging to the Rollgliss Technical Rescue range of products, the Rope-Safe Rope Grab has been designed and certified to meet an array of international standards for use as a secondary back-up device for fall arrest on kernmantle rope.

The device is certified to multiple world standards delivering advanced fall protection for workers at height. It provides the versatility of an automatic rope grab that is easily switchable to a towable manual grab.

Designed to meet the toughest of conditions and the demands of international markets, the device is rated as a fall arrester for a single user or for a two-person rescue up to 200 kg.

Supplied as a complete unit for use as a secondary back-up device for fall arrest, it is available in three shock-absorbing kernmantle rope lanyard connection configurations; a 300, 600 or 900 mm model. This provides a system that is designed and tested for maximum convenience and safety of the worker. DBI-Sala's i-Safe intelligent safety system using RFID technology is built into every device to track inspections, control inventory and manage information.

Capital Safety Group (Australia)
www.capitalsafety.com

ISO appliance inlets with lockout safety protection

The NHP range of ISO Appliance Inlets is fully tested and complies with the requirements of AS/NZS 3123:2005 and AS/NZS 3120:2011. The range of round pin ISO Appliance Inlets includes as standard a unique safety lock-off feature which prevents unauthorised connection of an incoming supply through a lockable cap mechanism. When matched with the corresponding ISO Extension Socket range, the patented lock-off mechanism prevents the unauthorised disconnection of loads by locking both appliance inlet and extension socket together.

The ISO Appliance Inlet and ISO Extension Socket lock-off mechanism is suitable for use with industry-standard padlock hasps of Ø 4.5 and 6.5 mm.

Available in both flat and round pin configurations and ranging from 10 to 50 A, the ISO Appliance Inlets are suitable for a wide variety of applications. All ISO Appliance Inlets are available in both grey and resistant orange.

NHP Electrical Engineering Products Pty Ltd
www.nhp.com.au

SIL2 rated pressure transmitters

Bestech Australia has introduced its 4-20 mA pressure transmitters with SIL2 certification for hazardous location ratings including explosion-proof, intrinsically safe and non-incendive areas. The SIL (Safety Integrity Level) certification was conducted through Exida and meets IEC 61508 standards.

The SIL process and rating simplify what systems to use to predict failure and system maintenance. SIL2 devices were traditionally used in the downstream oil and gas and chemical process industry, but have seen greater importance in upstream applications to ensure safety and reliability requirements are met.

A suffix is added to the end of the models requiring the certification. For standard hazardous location ratings and SIL2, the suffix will be '-SL'; if customers require SIL2 and ASME B31.3, the suffix will be '-Y'.

Bestech Australia Pty Ltd
www.bestech.com.au
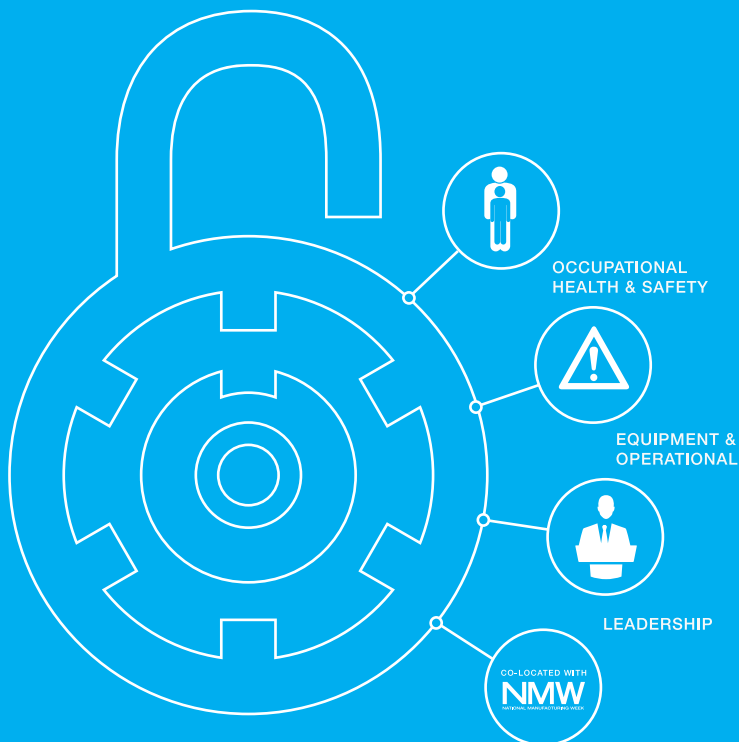
Carborundum stair nosing

Floorsafe Australia has introduced a range of carborundum stair nosings that meets the requirements of the Australian standards and the building code of Australia.

The range includes a fully coated carborundum insert in place of the usual PVC rubber serrated insert. On external stairways where pedestrian safety becomes of paramount concern, carborundum provides good grip and wear.

Neatly rebated hard-wearing carborundum strips are moulded into a high-quality aluminium profile which is also anodised for extra protection.

Floorsafe Australia Pty Ltd
www.floorsafe.com.au

Fire protection valve improved

Enclosed inside a metal cabinet, the Victaulic Fire-Pac is a preassembled fire protection valve and trim that is prewired to a fire alarm control panel or junction box. A number of design improvements have been made to the unit while maintaining the same small space requirements.

The electrical connection box from atop the cabinet has been relocated inside the cabinet, creating a lower profile for easier delivery and installation. The unit is now suitable for a wider range of operating environments thanks to new insulation and heating components for ambient temperatures as low as -6°C. It is also weatherproofed to an equivalent of NEMA 4 standards.

The pipe feed and drain can be located on the left, right or bottom panels for faster connections. All water drains inside the cabinet are hard-piped to eliminate potential leakage inside the cabinet enclosure. New panel designs include addressable capabilities with other intelligent devices; and Notifier RP-2001 releasing control panel, containing a power supply, stand-by batteries and a battery charger.

Suitable for airports; data centres; high-security, industrial and mining facilities; parking garages; and high-rise buildings, the unit is FM Approved and cULus Listed. All electrical enclosures and connections are UL Listed, and all materials and wiring conform to NFPA requirements.

Victaulic Australia/New Zealand
www.victaulic.com

Customisable range of safety glasses

Workers have a highly diverse range of facial profiles. Unfortunately, one-size-fits-all eye protection means many workers contend with ill-fitting safety eyewear, which can lead to lower safety compliance rates, decreased productivity and potentially more eye injuries.

Honeywell has developed the Adaptec customisable range of safety glasses that are designed to provide good fit, comfort and protection for all workers.

The solution starts with three distinct frame sizes: narrow, regular and wide. Having selected the correct frame size, workers can then adjust the locking nose bridge, temple hinge and the innovative head tensioning system for a customised fit that suits the wearer's facial proportions.

A choice of four lenses for different lighting environments is available, blocking anywhere from 8 to 78% of visible light, depending on the task. Honeywell's 4A+ lens coating provides a high level of resistance against fogging, scratching and dust attraction. The lenses are also easy to replace and have a 99.9% level of UV protection.

The eyewear is fully compliant with Australian Standard AS-NZS 1337.1:2010.

Honeywell Safety Products Australia Pty Ltd
www.honeywellsafety.com

Industrial breathalyser

The Andatech AlcoSense Surety industrial breathalyser is designed to provide an efficient and reliable method for on-site alcohol breath testing. Designed to deliver fast and precise results, the breathalyser is suitable for applications with a large workforce where health and safety is of a major concern or where legislation applies to ensure an alcohol-free workplace. It is suitable for the mining, rail and transport industries that may blanket test all employees.

The handheld industrial breathalyser is Australian Standards AS3547 Certified and features a removable fuel cell sensor module, which eliminates the need for units to be returned to the laboratory for recalibration. This can also ensure that OHS staff will always have a working unit for employee testing.

Available with a range of configurations and options to suit different requirements, the hand-held instrument can be easily adapted to meet different international BAC indications. It is also ergonomically designed for both right- and left-handed users. Other features include a large internal memory for 500 test results (expandable with an SD card), Bluetooth and printer connectivity, and passive testing mode. The device can be used by OHS staff to easily store and record data, print results on-site and test multiple employees efficiently. Also available from Andatech is a calibration management service and breathalyser training to suit small to large workplaces.

Andatech Breathalysers Pty Ltd

www.andatech.com.au

Gas monitor for chlorine and sulfur dioxide

The TriGard Gas Monitor detects chlorine, sulfur dioxide, other toxic gases, remote combustible gases and oxygen deficiency or enrichment. The monitors are designed specifically for water and wastewater applications.

Features include: an adjustable range; multiple sensor mounting options; NEMA 4X design; LCD with highly visible LED indicators; piezo horn with horn silence button; long-life, MSA-designed sensors; and simple push-button calibration.

Available as a single- or three-point unit, the product can be AC or DC powered. Other features include sensor disconnect under power, interchangeable smart sensors and onboard LEDs and relays.

MSA Australia Pty Ltd

www.msa.net.au

Handheld analyser for hazmat, explosives, narcotics and more

The TacticID-GP from B&W Tek is a handheld Raman spectrometer that is suitable for hazmat, explosives, narcotics and more.

The TacticID-GP is a field-ready, handheld instrument designed for non-contact forensic analysis by a variety of safety personnel and first responders, including hazmat technicians, bomb squads, law enforcement, border and customs patrol, military personnel and more.

Weighing less than 1 kg, the Raman spectrometer allows users to get real-time actionable identification of unknown chemicals, explosives, narcotics and many other substances while reducing operational uncertainty and response time without ever compromising the integrity of the sample or the chain of evidence.

The device comes standard with a comprehensive library of over 5000 hazardous chemicals, explosives, narcotics, prescription drugs, precursors and cutting agents. Additionally, it provides users with the capability to develop their own custom libraries in order to continuously maintain up-to-date identification capabilities.

It also comes with software for use on PCs for data and report management, allowing users to export data and generate reports. Additionally, it provides Wi-Fi synchronisation capabilities with network terminals in order to optimise time and resources.

Applications include: analysis of unknown solids, powders, liquids and gels through various package types; identification of toxic solvents and bio-warfare agents; identification of binding agents and explosive materials; non-destructive narcotic drug identification; and verification and identification of pharmaceutical drugs.

SciTech Pty Ltd

www.scitech.com.au

SYNTHETIC MARIJUANA
AND ITS IMPLEMENTATION INTO WORKPLACE DRUG TESTING/SCREENING

The last 12 months have seen an increase in drug and alcohol testing in the workplace across Australia, which has been largely driven by employer concerns about alcohol- and drug-related risk to workplace safety and productivity - according to LaneWorkSafe, an Australian-owned company and supplier of policy, programs and on-site testing devices. OHS professionals play a key role in the development and implementation of any workplace drug and alcohol program. To ensure the program is carried out effectively, it is important that workplaces stay up to date with industry trends. One of these industry trends has been the increased prevalence of synthetic marijuana - also known as spice, kronic and K2. Producing a similar or mimic-type effect to the use of marijuana, it is now reportedly considered a dangerous product and responsible for serious psychosis with potential for prolonged effects.

What are synthetic cannabinoids?

The National Cannabis Prevention and Information Centre explains: "Synthetic cannabinoids are manufactured chemicals that are designed to activate the same chemical systems in the brain as the main active ingredient in cannabis, delta-9-tetrahydrocannabinol (THC)." Some of the reported negative effects associated with use include the following:

- dry mouth
- vomiting
- seizures
- agitation and aggression
- high blood pressure/heart rate and chest pains
- relapse of psychotic disorders

"Synthetic marijuana is certainly an interesting substance to look at due to the fact that it is so underdetermined. While it may be similar to marijuana in its mimic-like effects, it is very different in composition and make-up. It is known that manufacturers of this banned substance continually change and alter the contents, making it difficult for on-site drug screening devices to test for this substance," says Kara Lane, the national sales manager of LaneWorkSafe.

While considered a banned substance, synthetic marijuana is not listed in Australian Standards AS4308:2008 like marijuana, opiates, amphetamine, methamphetamine, cocaine and benzodiazepines. LaneWorkSafe is one of the only companies in Australia to have introduced an on-site device that can accurately detect for this substance in the workplace.

According to the company, a tester simply places the Synthetic Cannabis Test in a urine specimen for 30 seconds and waits 5-6 minutes for a result. Lane says: "This device is sophisticated enough to look for the two main ingredients in the substance - JWH 018 and JWH 073 - making it one of the most accurate devices on the market. It provides a simple and reliable solution to the detection of synthetic marijuana in Australian workplaces." Ⓢ

LaneWorkSafe Pty Ltd
www.laneworksafe.com.au

Simplify your workplace drug testing.
Single wipe saliva drug test. Results in 8 minutes.

The DrugWipe from Pathtech is the leading saliva drug detection device in Australia. It is used by all Australian Police for roadside drug screening in every State and Territory, and many workplaces around the country as part of their internal drug testing programs.

DrugWipe from Pathtech:

› Smallest amount of saliva, just a wipe down the tongue

› Reliable results in 8 minutes

› Fast detection of up to 6 drug groups: Cannabis, Opiates, Cocaine, Amphetamine, Methamphetamines (MDMA, Ecstasy) and Benzodiazepines

› No handling of saliva required

› Less invasive than urine testing

FREE Sample

Try the Securetec DrugWipe for FREE

Contact the Pathtech Team and mention 'Safety Solutions' to request our DrugWipe sample. Offer available until April 2nd, 2015.

As used by all Australian Police jurisdictions for roadside drug screening.

Securetec DrugWipe saliva drug test
An easy to use, reliable test for the detection of drugs in saliva. Provides rapid results – within 8 minutes. No handling of saliva required.

Contact the Pathtech team
Phone 1800 069 161 | **Email** drugwipe@pathtech.com.au

pathtech.com.au

DRUG AND ALCOHOL

MANAGING
DRUG TESTING IN-HOUSE

In industries where the majority of workers are engaged in safety-critical work, a robust workplace drug and alcohol-testing regime can be a key component of the overall occupational health and safety program. It is therefore not surprising that there are many options available to the safety professional working in this industry. From in-house to outsourced drug testing, to the saliva testing vs urine testing conversation and through to various devices with different features - it can be confusing and, at times, difficult to get the right program in place and manage it well.

Pathtech has developed a checklist that may help organisations manage their in-house drug testing program. Based on Pathtech's workplace drug testing experience, the checklist consists of five key questions and answers that have been designed to help guide organisations with internal discussion when they are developing or changing their in-house drug testing program. The details are as follows:

Q1: What is the objective of your in-house drug testing program - is it to identify drug-use history or ensure fitness for work?

The answer to this question will govern which testing method will best suit the needs of your workplace. If organisations are looking to identify the drug-use history of its employees, and therefore their lifestyle choices, then urine testing could provide the best solution. If, however, organisations are only interested in ensuring that all their staff and contractors are fit for work when they are on-site, then saliva testing may provide the best solution. Saliva testing identifies only recent/current drug use and hence can help to determine who is capable to work during a particular shift.

Q2: How often will you be conducting drug tests?

It may be useful to establish a set of targets to help govern how many employees, or what percentage of the organisation's workforce, will be screened for drugs in the testing schedule. It is also important to consider the frequency of testing and whether it will be conducted on defined schedule or a random basis. Many organisations prefer random testing as the lack of a schedule itself can act as a drug-use deterrent. Employees then know that the drug testing can happen at any time, to anyone. However, even with a random schedule, setting testing goals can be useful.

Q3: Who will manage the testing?

Once the organisation has clarity on the testing targets, it can then resource the program with appropriately selected employees accordingly. To manage the process in-house, the Australian Standard stipulates that the employee needs to undergo the appropriate testing officer training with a registered training organisation. The course is usually one day in duration (with online options available), and on completion of the course, the employee will then be equipped to manage the testing regime. In-house testing can also provide cost benefits and the ability for the organisation to have a greater control over the testing program.

Q4: Do your employees know what to expect when being tested?

A clearly communicated company position statement on drug and alcohol testing should be designed to help minimise employee objections and concerns around the testing program. The statement may cover information on who may be tested, the means of testing (saliva vs urine), as well as the company's stance on drug use in the workplace. For example, "Company Z has a zero tolerance drug policy in the workplace."

Q5: What procedures must be followed if the result is positive?

It is considered best practice for any non-negative result to be confirmed by a secondary test. This can take place externally (for example, in a local medical centre) or by taking a second sample on-site and sending it directly to an external lab for confirmation. It is important that organisations make sure all employees are clear on the consequences of a failed drug screen. The results of the confirmation test may take a few days and a common immediate consequence for a non-negative initial drug screen is for the employee to be sent home, though this does vary greatly from policy to policy. Should the confirmation test come back as positive, the subsequent steps should also be clearly documented.

Testing devices to support your testing policy

Pathtech's latest drug-testing devices, such as saliva drug-testing device DrugWipe, are designed to help eliminate drug and alcohol abuse in the workplace. The Pathtech team also has experience working with many organisations that manage their drug testing process in-house, including several large mines, as well as a number of testing service providers.

Pathtech Pty Ltd
www.pathtech.com.au

Cooling vest

The Aussie Flexi Cool Vest has a series of cooling elements that are designed to cool the operator working in 60°C for up to 90 min. In more extreme conditions, the period of operational use decreases proportionally. 4 h is easily attained at temperatures of 45°C in normal firefighting or industrial applications.

The vest is normally worn over a T-shirt, wrapped tight against the body and under covering garments, ie, overalls, protective clothing or uniforms.

The vest uses Temptech elements which consist of a non-toxic, non-flammable blend of salts sealed in an aluminium wrapper. The salt compound melts at 28°C. At the moment of transition from solid to liquid, 50 times more energy is absorbed compared to a rise of 1°C when the compound is already in either liquid or solid condition. The vest is therefore able to absorb the excessive body heat.

The elements recharge, ie, reform salt crystals, at normal room temperature (20°C) in about 4 h. If the elements are placed in a freezer they recharge in less than 10 min. They can be used and recharged over and over again for up to 1000 cycles.

The vest is fully adjustable so that one size fits all. It is designed to be easy to put on and closes with velcro on the shoulders and sides. It incorporates 16 Temptech elements to absorb heat. Apart from the standard material, it's also available in fire-resistant Nomex material. The vest can be washed in a warm water cycle with the elements removed and weighs only 1.6 kg. Temptech elements can be easily replaced and most users keep one or two spare sets of elements available for prolonged application.

Australian Pump Industries Pty Ltd
www.aussiepumps.com.au

Overfill prevention system

Emco Wheaton has launched an overfill system which can prevents product overflows of fuel tankers during loading.

The F2020 Overfill Sensor uses electronic signals to prevent product overflows of tanker compartments, ensuring fluid is not lost. Suitable for tankers of up to eight compartments, the system is connected to the controls of the terminal through a plug and socket connection. When an overfill is detected, the system will override and shut down the terminal pump and metering equipment filling the tanker compartment.

The overfill protection system has ISO 9000/2000 approval and is manufactured in compliance with EN13922 and the European ATEX directive.

Gardner Denver Industries Pty Ltd
www.nash-elmo.com

Playing the safety deck

Every year begins with plans to improve on last year - especially in safety. Parsons Brinckerhoff has a new safety initiative to get back on deck for another year … safely, which is getting a fair amount of attention from its employees and clients who come in for meetings.

At Parsons Brinckerhoff, every meeting begins with a SHEQ moment. That's every meeting - whether it is with employees or clients. Every meeting stops and reflects on stories or learnings that could result in saving a project deliverable, the environment or even a life.

The initiative is aimed at sharing ideas about safety, health, environment or quality (SHEQ) in a productive and thought-provoking manner using its so-called 'Deck of SHEQ.'

The Deck of SHEQ is available in meeting rooms in each of its offices. Each card in the deck outlines a statistic or well-researched fact intended to stimulate conversation, such as "talking on the phone while driving can result in conversation blindness" or "fatigue plays a role in 90% of accidents".

Rather than trivialise discussions, the company says the Deck of SHEQ has pumped them full of life, helping to reinforce a positive culture within its business.

There's a few ways to play the cards:

Option 1: Random selection: Nominate a dealer to select a card at random and share a SHEQ moment based on that card.

Option 2: Preferred pick: Give the full Deck of SHEQ to someone. They turn one card at a time until they find a message that personally resonates with them and then share a SHEQ moment based on that card.

Option 3: Round the room: One card is dealt to each person in the room. A volunteer then shares a SHEQ moment based on an issue that they can directly relate to. Keep dealing until someone has a story to share.

The company says the Deck of SHEQ means they are never stuck for a SHEQ moment and they begin the year as they intend to go on - safely.

Parsons Brinckerhoff
www.pb.com.au

NEW
PRODUCTS
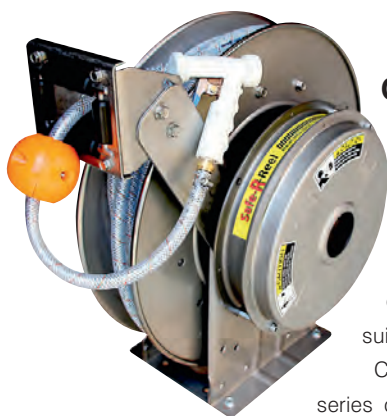
Complete washdown solution

Wherever washdown hose reel stations are required for food, beverage or pharmaceutical application, Reel Tech - Hannay stainless steel reels can provide protection against contamination and corrosion. The stainless steel reels ensure no paint transfer or rusting, making them suitable for harsh or sanitary conditions.

Coupled with the Strahman Automatic Water Saver series of spray nozzles, SprayNozzle Engineering has devised a washdown solution that includes a stainless steel seat designed to prevent nozzle leakage, which automatically shuts off the nozzle when the trigger is released, further reducing wastewater. All the nozzles are constructed of stainless steel and bronze and fitted with a replaceable rubber cover in black, red or white. A 100% stainless steel model is available as is a special assembly for food-grade applications.

Australian made and patented, the stainless steel Safe-R-Reel is carefully constructed to make winding and rewinding of the heavy-duty water hose quick and efficient. It also provides tidy hose storage and protection.

The Safe-R-Reel Rewind Speed Control is designed to reduce the risk of injury, equipment damage, downtime and hose wear associated with excessive rewind speed.

Spray Nozzle Engineering
www.sprayingsolutions.com.au

Expandable I/O safety controllers

The Banner XS26-2 series of safety controllers has expandable I/O for flexibility and integrated LCD for easy troubleshooting. The safety controller has been designed with the ability to add up to eight expansion models, easily adapting to a user's changing automation requirements. There is a choice of six expansion models with a variety of safety inputs, solid-state safety outputs and safety relay outputs.

The device provides a simple and flexible safety solution for machine safeguarding and a good alternative for multiple safety relay module applications, or when a safety PLC is excessive and too costly. Programmed in minutes with easy-to-use, free configuration software, the safety design can be customised with several logic and function blocks. The device interfaces with a selection of safety devices and diagnostics to enable active monitoring of I/O on a PC.

Micromax Pty Ltd
www.micromaxsa.com.au

Access control system

The AccessPack access control system is designed by CASWA to reduce OHS and business risk associated with the use of industrial equipment.

The system uses smart-card technology to prevent unauthorised operators, and machines will work only when the user has a valid RFID card. The RFID card is programmed with 'tokens' for each respective piece/type of equipment that a particular operator can use, based on the person's inductions/training/certifications and associated expiry dates. As soon as the logged-in user finishes using the equipment, the user is automatically logged out to prevent usage by unauthorised personnel.

Unlike traditional access control hardware that relies on communication between the access control point and a central management computer running a database of permissions, AccessPack is a stand-alone system with all the information required to grant/deny access being contained on the user's RFID card.

Suitable for a range of high-risk or critical equipment such as cranes, production-critical machines, hydraulic power packs, lathes, presses, CNC plant and breakout machines, the system can also be used on vehicles such as forklifts, diggers and elevated lifting platforms. There is also no limitation to the number of units or different equipment types on a site. Installations can be a single machine on one site, a type of machine across multiple sites, or a total enterprise solution for all types of critical or hazardous equipment.

The system also records who uses the equipment and provides HSE staff with access to information required for effective incident investigation and proactive training needs analysis. Other features include the ability to track when maintenance or servicing is due and adminstration is simply enabled with a secure web interface. Equipment can also be tagged out if this is required for any reason. In this mode, no operator, certified or otherwise, can physically use the equipment until it is safe to do so.

A wide range of applications kits have been developed so AccessPack is currently able to be fitted to any equipment powered from 2 to 415 V, AC or DC.

CASWA Pty Ltd
www.caswa.com.au

Thermal imaging cameras help prevent fires in waste plants

The amount of waste worldwide continues to increase. Currently in the Czech Republic, 75% of the municipal waste is stored in landfills. Approximately 400,000 tonnes of that waste is thermally processed in municipal waste incinerators, amounting to a total heat supply of about 2.3 million gigajoules and a gross electricity production of about 18,000 megawatt hours. The advantage of thermal treatment of waste is, in addition to energy gains, the reduction in waste volume (approximately 10 to 15% of the original weight). The ZEVO plant at Malešice has been operational since 1998 and takes care of the transformation of waste into thermal and electric energy. The acquired energy is used as heating of domestic water and residential buildings.

Fires can be a threat in waste plants of this nature, the most common causes being spontaneous chemical combustion of waste; heat from vehicles that collect the municipal waste; and fire or explosion due to the increased concentration of methane released from the waste during the decay process. In order to reduce the risk of fires, the ZEVO Malešice plant decided to invest in the Waste Bunker Monitor system from Workswell.

The waste at the ZEVO Malešice plant is imported into a storage tank, used for the homogenisation of materials and to ensure sufficient reserve of waste so that the plant can be operated continuously. In this case, Workswell opted for two FLIR A615 cameras with a resolution of 640 x 480 pixels and with an 80° lens. These cameras monitor the storage tank for hot spots that indicate the possibility of a fire starting.

The Waste Bunker Monitor system from Workswell combines the non-contact measurement technology from FLIR Systems with proprietary software which presents plant operators with the critical areas that have an increased risk of fire. "The whole system is scalable and can consist of several thermal imaging cameras with high spatial resolution and with thermal sensitivity greater than 0.05°C," commented Jan Kovár, managing director at Workswell. "We have found that the FLIR A315 or FLIR A615 cameras are the best fit for our system. We always determine the number of cameras, their resolution and visual field of view in order to detect the smallest temperature difference."

Control room monitoring

The monitored area is divided into zones in which the temperatures are evaluated several times per second. Consequently, the automatic system reports any area with an increased surface temperature to the crane operators.

At the head of the thermal imaging system is control and visualisation software that displays the images and temperatures coming from the FLIR thermal cameras. The software also provides operator visual and audio alerts whenever the temperature exceeds a certain value. Next to the thermal image, the software presents operators with an area map, divided into sectors making it easier for operators to pinpoint the exact location of a hotspot.

"Luckily, we haven't witnessed any fires yet at the ZEVO Malešice plant," said Jan Kovár of Workswell. "But we are very confident that the system and the thermal imaging cameras from FLIR will do a good job. We performed several tests before the actual deployment of the system and the results were much better than we expected."

FLIR Systems Australia Pty Ltd
www.flir.com.au

NEW PRODUCTS

Colour-coded padlocks

Cirlock has developed a large range of different coloured padlocks which are designed to help with safety procedures. The latest colours added to the range are purple and pink.

Locking out a power source is critical to the safe maintenance of any electrically operated equipment. The coloured padlocks can be used to colour-code job types or levels of seniority within an organisation so workers know who to go to on-site to unlock the power source. Cirlock is also supporting the National *Breast Cancer* Foundation's 'Real men wear pink' campaign with its pink padlock range.

Cirlock
www.eriklarsen.com.au

Push-button panel

Designed to be fitted to commercial off-the-shelf aluminium profiles, the Schmersal Universal BDF200 Control Panel offers good flexibility with colour combinations for mushroom buttons, push-buttons and illuminated push-buttons.

The slender, shockproof, thermoplastic enclosure has an environmental protection class of IP65 and is easily installed in an ergonomically favourable position.

With a variety of contact configurations, the panel provides a flexible and ergonomic solution for machine builders.

Control Logic Pty Ltd
www.control-logic.com.au

CCTV FOR WHS AND COMPLIANCE

Christian Dorau, Director, ADT Security

Many people may think of CCTV cameras primarily as a security solution, but the benefits can be much broader. Organisations are increasingly recognising the value of surveillance cameras to help address workplace compliance and work, health and safety (WHS) policies.

WHS legislation states that employers and self-employed persons are to ensure the health and safety of all people in their workplaces. According to WorkCover NSW, the total direct costs due to slips, trips and falls in NSW alone is approximately $110 million. The laws in this regard can vary for different industries, but with the average cost of a workers compensation claim being approximately $18,900, potential litigation costs can have a major impact on a business. Having camera footage on hand to verify incidents or check an employee was following company policy and safety procedures can be a valuable resource, particularly for workers operating in hazardous environments or working alone in remote areas.

While CCTV cameras can be a vital resource for monitoring staff safety and compliance, companies must also consider the CCTV Code of Ethics. As CCTV becomes more common in the workplace, before installing a CCTV system, businesses must consider the ethical use of cameras to ensure they comply with Australian privacy laws. The law requires employers using CCTV cameras to inform staff that the cameras are in use and explain the reasons why the cameras are in place. CCTV cameras should not to be installed purely for the sake of observing staff - there must be justification for the presence of cameras, for example, monitoring WHS policies, overseeing the operation of machinery

to help avoid the risk of injury or watching out for lone workers who may be located in isolated or remote areas.

It is a company's responsibility to ensure all staff members understand the risks and hazards in their workplace environment and know how to manage them. It is also important for a company to consult on and communicate their surveillance policy and procedures so that employees fully understand how the CCTV footage is being used. If installing surveillance for the first time, consider involving staff in the initial stages of installation to ensure they feel a part of the process and understand the reasons why a monitoring system is being installed. Signage must also be clearly visible in and around the areas where cameras are present.

Considerations for installing CCTV cameras in the workplace

Before installing any surveillance system in the workplace, firstly identify what issues are to be addressed. This determines the type of CCTV system required, ensuring the right level of image quality for purpose. For instance, are finer details such as facial recognition or vehicle number plates important? This is where a professional security expert can help. A professional security consultant will assess the workplace environment and provide advice on things

that a business owner can easily overlook such as the level of lighting and the positioning of the cameras.

The types of video surveillance that can help business address WHS and compliance may include:

• Security cameras: A full line of closed circuit television cameras and lenses for varying surveillance needs. Specialty cameras such as infrared, low-light and night vision cameras can be installed. PTZ (pan-tilt-zoom) cameras can also feature new technology such as facial recognition capabilities.

• Digital video recorders: Solutions offer scalability from basic, single camera installations through to large-scale, enterprise-level, multisite deployments that feature sophisticated video analytics and management systems with high-level access control integration.

• Security monitor screens: A full line of monitor types, sizes, resolutions and formats is available that includes LCD, flat panel and touch-screen capabilities.

• Remote viewing: Solutions range from IP-based cameras to web-based browser software using cloud-based platforms.

• Touch-screen systems: Touch technology is intuitive, accurate, fast and easy to use. ADT can provide touch-screen equipment for greater efficiency when using CCTV systems. It can also monitor customer and general public behaviour and provide evidence of fraud, such as slip and fall verification.

Integrated systems using access control technology can also be used to enhance compliance. This is particularly beneficial for factories and businesses that operate hazardous machinery. Access control can help workplace compliance by ensuring that machinery is only being operated by authorised staff and its operation is backed up with monitored CCTV footage should an incident occur.

The number of businesses using CCTV to address workplace safety and compliance is growing - a trend that looks set to continue. Ⓢ

ADT Security
www.adtsecurity.com.au

NEW
PRODUCTS

Fire system horn sounders

E2S Warning Signals has gained VdS approval and CPR compliance to directive 305/2011/EU for its AlertAlarm D112 alarm horn sounder by testing to EN54-3. It combines the electronics of its AlertAlarm A series with a robust, corrosion-resistant, marine-grade LM6 aluminium alloy enclosure, giving greater mechanical and UV protection.

The device has a maximum SPL of 119 dB(A) @ 1 m at the nominal 24 VDC fire alarm system operating voltage; the CPR compliance is valid for operation from 18-30 VDC. The 48 VDC version is also compliant. The VdS approval covers the five most commonly used fire alarm warning tones and also confirms that the units operate to specification under conditions of dry and damp heat, cold, shock and vibration. The aluminium enclosure complies with Type B environmental category making it suitable for outdoor installation, and so supporting the extension of a fire detection system into areas beyond the office environment. Other tests include EMC, SO_2 corrosion resistance and dust and water ingress.

UL approved versions for general signalling use are also available. For this version, the aluminium enclosure is sealed to IP66, NEMA Type 4, 4X and 3R.

For use in a wide range of signalling applications, the AlertAlarm D112 has a choice of 45 different alarm tones, and also has the option of activating a second and third tone via additional control cables. It is also available as part of the DL112X, in which the horn sounder is integrated with a 5-joule Xenon strobe, or as the DL112H combination unit, where the horn sounder is combined with a high-output, 24-unit LED array beacon.

Mechtric Pty Ltd
www.mechtric.com.au

Rechargeable LED flashlight

The Pelican ProGear 2380R LED flashlight is powered by a rechargeable Lithium-ion battery. Weighing 0.19 kg with batteries, the lighweight flashlight is suitable for a wide variety of users including law enforcement, military and outdoor enthusiasts. It has three modes, high (305 lumens), low (30 lumens) and strobe, and uses Fraen patented dual reflector optics and Slide-Beam technology to provide a spot to flood beam instantly.

The flashlight shines a bright beam for 3 hours and 30 minutes in high mode. For extended use, up to 25 hours of run time is available in low mode. A battery canister is included that will accept two disposable CR123 lithium batteries to allow for alternative or extended use.

Other features include a full-time battery level indicator, a removable clip for pocket storage and transport, and a micro-USB charging cable which allows it to charge from a computer, USB wall adapter or any USB vehicle power port.

The Type II hard anodised aluminium construction makes it durable and the anti-slip knurled pattern allows for all-weather usage.

Pelican Products Australia Pty Ltd
www.pelicanaustralia.com

Monorail air hoists

Following the complete reworking of JDN's EH series up to 60 tonnes, the JDN EH 75 and EH 100 Air Hoists are now available. Key components include the motor featuring the innovative JDN motor brake concept.

Other improvements include: up to 50% energy saving by decreased air consumption; up to 50% faster; up to 10% lower hoist weight; decreased overall dimensions; reduced sound level; and four trolleys or compact design (C) with two trolleys.

The powerful EH models are primarily used for BOP-Handling on oil rigs.The EH series is a reliable solution for the harshest requirements, particularly for on- and offshore applications. The hoists also provide good service in the cement industry and wherever heavy loads have to be moved.

Pacific Hoists Pty Ltd
www.pacifichoists.com.au

Ultrasonic wind sensor

The Gill Instruments WindObserver Intrinsically Safe ultrasonic anemometer is now certified by the International Electrotechnical Commission (IEC) for use in explosive atmospheres (Ex).

Gill has added IECEx to existing safety ATEX certification held for its anemometer, which can provide quality data and reliability.

The WindObserverIS provides accurate measurements of wind speed and direction and can be installed in hazardous and explosive atmospheres found in marine, offshore and other environments where significant quantities of flammable liquids, vapour and combustible dusts could cause fire or explosion. The device measures wind speeds of 0-75 m/s and 0-359° wind direction in extreme environments, remains operational in temperatures from -30 to +70°C and provides low start-up speeds of 0.01 m/s. It has no moving parts, is lightweight and is constructed from stainless steel to provide durability with low maintenance requirements, making it suitable for long-term installations in areas where access is difficult. The device also features sophisticated error checking and fault reporting to ensure the quality of the reported data.

Observator Instruments Pty Ltd
www.observator.com.au

Protecting employees from workplace cut hazards

Stihl, a producer of heavy-duty power chain saws, develops equipment that makes cuts when and where they are needed. During a recent review of safety gloves for employees at the company's manufacturing plant in Wil, Switzerland, it was determined gloves meeting EN 388 cut level 3 offered the required protection to protect its employees' hands from accidental cuts during manufacturing operations.

"We sought a safety glove that would significantly improve the cut protection for our employees as well as their willingness to wear them," explained Roland Zürcher, safety expert at Stihl Kettenwerk GmbH & Co.

After extensive testing of a total of 13 different gloves, Stihl selected the HyFlex 11-518 cut-resistant safety glove made by Ansell as it meets the requirements of cut level 3 according to EN 388 and yet it is relatively thin for maximum dexterity. The glove is also breathable, abrasion resistant and has a thin polyurethane coating on the palm side for optimum tactility.

"The gloves we used previously were either too thick and heavy or didn't offer enough protection," said Zürcher. "This was particularly true for the handling of smaller parts, such as the razor-sharp cutting teeth for the chains of our power saws."

The HyFlex 11-518 glove was developed in close collaboration with the fibre specialists at DSM Dyneema and is based on Dyneema Diamond Technology. This technology delivers a yarn with about half the weight and thickness of those used in traditional HMPE gloves. This makes it possible to create a finer knitting structure, resulting in higher flexibility and improved grip, without any compromises in cut, tear and abrasion resistance. The fibre also has good heat conductivity for a 'cool feel' - making gloves easier to work with when compared to heavier, stiffer gloves.

"Despite their high cut resistance, these gloves leave our employees with a safe feel for the parts. And when everything is under control at the first grip, work also has a much smoother and more productive flow," said Zürcher.

The HyFlex safety gloves have been successfully in use for over 12 months. The gloves are said to have met with a high level of acceptance among Stihl's employees and it has been reported that there have been fewer hand injuries coupled with a positive effect on the costs of occupational safety insurance.

"We see a growing demand for thin, yet extremely cut-resistant, safety gloves in various markets," said Werner Schwarzberger, senior regional sales manager industrial and specialty markets at Ansell. "The Dyneema Diamond Technology used in the HyFlex 11-518 results in a glove that meets cut level 3 while at the same time providing the fingertip sensitivity of bare hands."

Gloves based on this technology can also be washed and re-used multiple times, depending on their use and wear, without losing their cut-protection properties.

Ansell Healthcare
www.ansell.com.au

NEW PRODUCTS

Protective eyewear

The SolarPro 2 range of polarised eyewear is designed to not only protect eyes but also eliminate glare and reduce eye strain.

Glare occurs when a surface reflects light intensely into the eye. When light bounces off a flat surface, such as water, roads or steel, its waves are strongest horizontally. The SolarPro 2 eyewear features polarised lenses with minute vertical strips laminated in, which prevents horizontal light waves passing through, eliminating glare. Eye fatigue is reduced and intricate details can be seen without strain.

The eyewear blocks more than 85% of visible light and more than 99.9% of UV radiation. It also includes Honeywell's Hardcoat lens coating, which is scratch resistant, resists many chemicals and is permanently bonded to the lens so it can't wear off.

Providing protection against medium impacts and approved to AS/NZS 1337.1:2010, the eyewear comes in an attractive design with a retainer cord and a microfibre storage pouch.

Honeywell Safety Products Australia Pty Ltd
www.honeywellsafety.com

Glow-in-the-dark LED flashlight

The compact and lightweight Pelican ProGear 3310PL LED flashlight is made from a tough polymer material with a photoluminescent finish that gathers ambient light. This enables it to glow in the dark when the light is turned off, making it easy to locate in blackout situations.

Engineered to fit well in the grasp of gloved hands, the flashlight also features ridges along the handle to allow for a non-slip grip and a security wrist lanyard is attached to avoid losing it in high-risk situations.

Other features include: lightweight at only 0.18 kg (including batteries); IPX7 ingress protection rating to ensure reliability in wet environments; and a castle-top to alert the user when it's turned on and left in an upright position.

Available in three modes: high (234 lm), low (28 lm) and flashing, the flashlight has a runtime of up to 8 h and 45 min in high mode, a beam distance of 240 m and peak beam intensity of 14,500 cd. It operates using 3 AA batteries, which are included.

Pelican Products Australia Pty Ltd
www.pelicanaustralia.com

LED beacon range

The Narva Eurotech 12/24 V dual-voltage LED beacon range has been designed for commercial and construction industries. The beacons also meet the heavy vehicle regulation 2013, number 77, making them suitable for on-road use.

Available in a low-profile and standard-height option, both sizes have a flange base which allows alternative and synchronised operation of up to four strobe units. The low-profile option is also available in two additional mounting configurations.

Modern optic technology used in the lamp's design magnifies the light output, creating a powerful, solid and seamless projection of light that meets the SAE Class 1 rating.

The compact, durable beacons can perform two light functions in one - both flash and rotate. Using LED technology, they also have six adjustable flash pattern options.

Other features include: reverse polarity protection, fully sealed (IP65) solid state circuitry, virtually unbreakable polycarbonate lenses, and good shock and vibration resistance.

Brown & Watson International
www.narva.com.au

Slip-on safety shoe

The Gator Claw slip-on safety shoe is designed for workers looking for a lightweight and versatile safety shoe. It features an aluminium toecap, which is lighter than steel but still provides 200J impact protection. The upper is made of water-resistant nubuck leather and has an anti-abrasion bump cap to protect the toe area.

A 300°C heat-resistant, antislip rubber outsole combined with an EPR (ethylene propylene rubber) midsole delivers a durable sole with good shock-absorbing properties. A composite anti-perforation plate protects against sharp objects penetrating through the sole.

Available in sizes from UK 3 to 13, the shoe is certified to AS/NZS 2210.3:2009 CLASS 1.

Trading Downunder
www.tradingdownunder.com.au

Maintaining electrical equipment in moist and dusty environments

A Chemsearch specialist recently visited a steel specialist supplier in NSW that was having regular problems with its operating equipment. The equipment was located in an area of extreme moisture and dirt; as a result of the location, the internal control cards in the equipment would regularly corrode and fail. This was proving to be an expensive problem for the company, as each control card that needed to be replaced cost $1000 and every shutdown was costing approximately $8000 per hour. Therefore, a solution was required.

There is often a lot of time and money spent on downtime during these types of electrical failures in many dusty and moist workplaces but, according to Chemsearch, it is easily preventable. Chemsearch has previously identified the need for a cost-efficient way of resolving these electrical issues. It has found that in most workplaces, electrical equipment needs to be cleaned safely without the risk of electric shocks or outages. This research led Chemsearch to develop the Lexite NF non-flammable aerosol cleaner and degreaser, which is specially designed for electrical equipment. It has a dielectric constant of 5000 V and is non-corrosive.
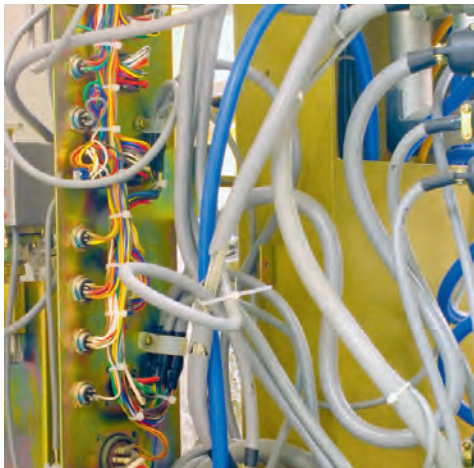
Its research also found that equipment needs to be completely moisture-free and also protected in order for it to continue to run efficiently. This research led to the creation of a product called NC-123 Extra, which inhibits moisture and corrosion with a flexible, waterproof film that can be easily sprayed on. It can also be applied to wet and dry surfaces, as well as moving parts.

The Chemsearch specialist at the steel supplier site recommended the use of the Lexite NF and NC-123 Extra product on the operating equipment at the site. The products have now been used for a year and the equipment hasn't failed once. Also, by not having to replace the control cards and not having unplanned downtime, the company has made substantial cost savings over the year.

Chemsearch Australia
www.chemsearch.net.au

NEW
PRODUCTS

Object detection system

Sick's Advanced Object Detection System (AOS Prime) with laser technology can be used when moving heavy loads in order to reduce the risk of collisions. The object detection system is a self-testing system with good diagnostic capabilities. The system is used in monitoring applications where a stand-alone laser scanner is not sufficient and high operational reliability of the system is required. With its preconfigured logic blocks, the system can be efficiently and reliably put into operation. In addition to optical sensor testing, the response time and output signals of the sensors are continuously tested during operation.

SICK PTY LTD
www.sick.com.au

Traffic calming speed humps

LSP Safety's traffic calming speed humps are manufactured to AS2890.1 2004 Australian standards and are claimed to provide a quieter traffic crossing than metal alternatives.

Made from hard-wearing, tough thermoplastic, modules are 250 mm in length with a high 60 mm profile for extra slowing power. Safety features include solid bright yellow and black material fitted with light reflectors and non-slip diamond surface for extra grip.

The UV-stabilised speed humps can be installed or relocated in minutes as no special machinery is required, therefore traffic disturbance and labour are minimised.

Other features include a channel under speed hump modules to protect cables and patented bevelled end caps to round off speed humps to required lengths and prevent tripping hazards.

Line Marking and Safety Products
www.lspsafety.com.au
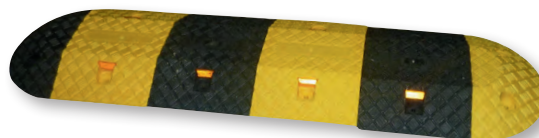
MAINTAINING MINING EQUIPMENT

Mining operations and manufacturing facilities rely on the continued safe operation of vehicles and machinery to maintain safety and profitability. Any equipment failure can be expensive in terms of lost production and cost of repairs. An estimate for the cost of lost production for a single dragline is $8000 per hour in Australia, making any breakdown very costly when it might take weeks for a replacement part to be available.

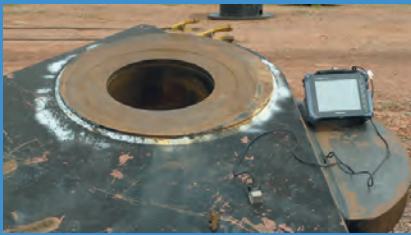One way to minimise losses is to continually monitor plant and machinery using non-destructive testing (NDT) methods to ascertain component health, and monitor mechanisms for damage. Phased array ultrasound can enhance day-to-day inspection of surface mining equipment, thereby improving safety and keeping critical equipment operational. However, it is important that inspections are performed with minimal downtime, so they need to be planned and coordinated to ensure that critical parts are available when the maintenance is carried out.

As part of the technical program at the recent Australian Institute for Non-Destructive Testing (AINDT) Conference in Brisbane, Nicholas Bublitz, a global product support specialist with Olympus Scientific Solutions America (OSSA), reported on how the use of phased array ultrasonics could improve surface mine profitability.

NDT is a group of techniques used to detect discontinuities in materials or components without causing damage or permanently altering the article being inspected. The AINDT Conference provided opportunities for NDT and maintenance professionals to meet and discuss the latest advances in NDT from around the world. Leading corporate members of the institute, such as Olympus, displayed and demonstrated some of its precision analysis instrumentation and applications supporting NDT.

"NDT methods like ultrasonics, eddy current and radiography - along with condition monitoring techniques such as oil and vibration analysis - play an important part in predictive maintenance programs and help reduce unexpected expenses," Bublitz said. Outage and emergency repair costs can be a significant percentage of the total operating cost of a mine. Finding a crack and repairing it before failure, or monitoring it until it needs replacement and ensuring that parts are ordered to arrive in time for the maintenance work, saves both time and money.

Machinery used to access, remove and haul away coal and other mineral resources at mine sites is often used during every shift and is under constant operational stress due to the sheer weight or the rotation and vibration of components and engines. Draglines and shovels are two key pieces of operating equipment where there are many beneficial applications for phased array inspection and analysis. There are many shafts, pins, bores and lugs on these machines, all of which present opportunities to benefit from phased array inspection. In addition, the benefits of phased array in weld inspection are well documented and are equally applicable in mining applications.

One example Bublitz presented at the AINDT conference was the checking of dragline swing shafts, which are often long with variable outside diameters. Cracks commonly occur at the transition or taper-down areas. Often two or more ultrasonic angles are chosen and multiple manual conventional ultrasonic inspections are performed where the probe can be applied to the shaft. He showed that the application of phased array simplifies the inspection, and provides better identification and sizing.

Phased array imaging helps identify geometric landmarks to help define the location and importance of any discontinuities. The overall probability of detection is increased using the comprehensive visual representation. Data capture allows for further offline analysis. The result is more dependable, accurate and faster assessment of potential failure sites.

"The use of multiple angles and imaging increases coverage, reduces scanning times, and provides better detection and characterisation capabilities especially when monitoring crack growth," Bublitz stated. "Phased array can add a huge benefit to mine predictive maintenance programs and in turn increase profitability."

The latest generation of phased array equipment from Olympus is designed to make the technology accessible and economical to use. The products include ultrasonic flaw detectors and thickness gauges, eddy current equipment, videoscopes, borescopes, microscopes, advanced non-destructive testing systems, X-ray fluorescence and X-ray diffraction, and a large selection of industrial scanners, probes, software programs and instrument accessories. ⑤

Olympus Australia Pty Ltd
www.olympusaustralia.com.au
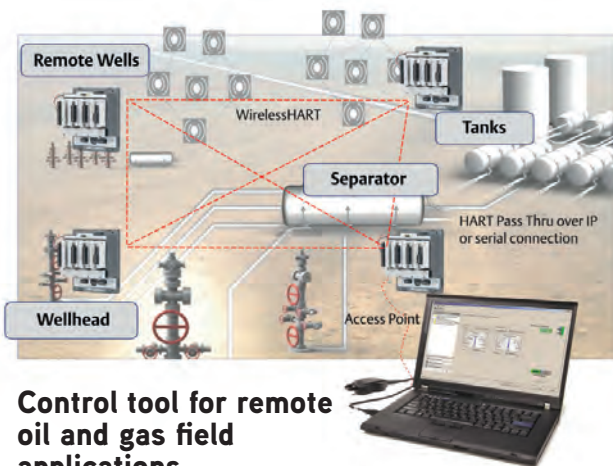
Control tool for remote oil and gas field applications

Emerson Process Management has introduced the OpenEnterprise Field Tools, Remote Terminal Unit (RTU) and HART configuration suite that enables local and remote configuration and real-time HART device monitoring in remote oil and gas applications such as wellhead automation, flow measurement and tank-overflow protection. The software suite streamlines servicing and maintenance of multiple RTU platforms and HART transmitters across remote sites, helping improve operations and field personnel safety.

The single software toolkit enables the configuration of Emerson's family of remote terminal units, flow computers and presets including products under the ROC, FloBoss and ControlWave brands. Additionally, OpenEnterprise Field Tools is a fully functional HART communicator that supports configuration, troubleshooting and maintenance of all wired HART and WirelessHART transmitters. Field Tools provides a safe and easier solution to complex remote device configuration challenges.

Once a HART network has been commissioned, regular maintenance site visits are not required because Field Tools supports live-mode monitoring of all HART devices connected to an Emerson RTU or flow computer.

Emerson Process Management
www.emersonprocess.com.au

Height-adjustable work platform

Actisafe has added a height-adjustable work platform to its list of industrial safety products. Able to be manufactured to customised lengths and widths, the work platform lifts personnel to the most ergonomically suitable height for a safer working position.

Made from heavy-duty steel, it is suitable for the food processing, manufacturing, warehousing, meat works, painting and cleaning industry sectors.

The height-adjustable work platform is available in food-grade stainless steel to comply with health guidelines in the food processing sector, including primary industry.

The platform can be powder coated in the colour of choice for those wanting to align the equipment with corporate identity.

Each unit can be customised to be a static unit on heavy-duty legs. It can be configured with locking wheels and the lift/lower system can be a mechanical device or include an electric motor with controls.

A major benefit from the product is that it allows personnel - regardless of their physical stature - to be lifted to a safe and comfortable working height to avoid any possibility of personal strain injury.

Safety rails ensure employees can move about freely on the equipment without fear of falling off and the company says the platform takes the act of 'reaching vertically' out of the equation of many workplace tasks.

In particular for primary industry and the food processing sector, the platform can be made with a tough polyethylene floor. This substance is inert and therefore suitable around food handling.

Actisafe
www.actisafe.com.au

End-to-end racking protection

Dematic has launched a Colby Rear Upright Protect-a-Rack which is designed to enhance safety levels in Australian and New Zealand warehouses and distribution centres. The rear upright protector builds on Colby's existing Protect-a-Rack, which protects the front side of storage racking uprights by eliminating any catch points as pallets are being placed into or retrieved from the storage system, and deflecting any forklift impact forces. The rear upright protection was added following reports from customers that although their front uprights bear the brunt of most damage, they were still experiencing damage to rear uprights. This damage was most commonly due to forklift drivers pushing a pallet too far into the ground level storage bay, causing it to strike the rear upright.

The system is now capable of fully protecting racking from front to back.

Dematic Pty Ltd
www.dematic.com.au

Anti-collision systems ensure safe container-terminal operations

Container terminals operate on a 24/7 basis, so the demand on availability is extremely high. Collisions involving the boom of ship-to-shore cranes and the ships themselves pose the greatest risk in daily operations.

In order to offer its customers uninterrupted operations, DP World - one of the leading container-handling companies - has decided to equip the expansion of its Jebel Ali facility in Dubai with anti-collision systems from Sick.

Jebel Ali has been voted 'Best Seaport in the Middle East' for 19 consecutive years and is just one example of DP World's high level of service. The new Terminal 3 in Jebel Ali is to become yet another benchmark for safe and efficient operation.

Collisions involving the boom of ship-to-shore cranes and the ships themselves pose the greatest risk in daily operations. Accidents of this type account for 31% of the costs of quay crane insurance claims; they are the single largest cost item in this area. Collisions of cranes with other cranes and other equipment occur almost as frequently. In addition to the immediate damage - including damage to customers' property such as the ship or its load - collisions may also result in extended downtime of cranes and other port equipment.

Quay Cranes in Terminals 1 and 2 are today already equipped with Sick technology. All 69 cranes in the new Terminal 3 will be equipped with new Sick AOS systems for boom-collision prevention on the STS cranes and pathway-collision prevention on all the cranes. In order to maximise efficiency, the Jebel Ali facility will also use LMS511 2D laser scanners for truck/vehicle positioning and POMUX KH53 linear encoders from Sick for automated and precise positioning of the trolleys.

The AOS system uses cutting-edge LMS511 and LMS111 laser scanners. These sensors feature high-speed sampling technology and support the evaluation of multiple echoes of a single pulse.

This drastically increases the accuracy and reliability of the data and allows the units to be used 24/7 in virtually any weather conditions - for example, dust in Jebel Ali or fog, rain or snow at ports elsewhere.

LMS511 and LMS111 can evaluate multiple fields, all at the same time. The AOS system comes with pre-configured fields for warning, deceleration and stop and can be adapted to customer requirements. Evaluation features include blanking of objects, reference contours, defined pixel patterns, etc. Fields can change dynamically, depending on the status of the inputs. With Flexi Soft, the AOS systems use a high-performance, modular safety controller. This allows for easy integration into the control architecture of the complete system. The controller features sophisticated, unique self-testing functions to check at any time the availability of the system regarding all configured field sets and installation position.

However, outstanding technology was not the only reason for DP World to opt for Sick. Sick was able to readily respond to DP World's requirements for a complete solution with all applicable sensor technologies, not just for individual sensors. As a global organisation, Sick is also represented in many countries. Experts from Sick based in Dubai, Sweden, China and Germany successfully liaised with DP World, the system integrator from Sweden and the main manufacturers from China and Abu Dhabi. Nabil Qayed, Director, Technical Department, DP World UAE Region, said: "24/7 availability is paramount in container-terminal operations. The anti-collision solutions from Sick play a key role in our new Jebel Ali terminal to ensure this availability and will help us to achieve new standards in efficiency and competitiveness for our customers."

SICK PTY LTD
www.sick.com.au

Scotch-yoke actuators

The GP and GH ranges of scotch yoke pneumatic and hydraulic actuators are designed to operate ball, butterfly and plug valves requiring a rotary, quarter-turn movement for either on/off or modulating duty.

Spring-return units can be assembled to provide failsafe operation in either direction. The spring-return module is inherently safe since it can only be removed from the centre body after all spring forces have been released. Centre bodies incorporate a pressure relief valve. Both ranges can be supplied with either symmetrical or canted torque arms. The classic symmetric yoke delivers peak torque at both ends of stroke. The canted yoke is a Rotork design innovation that delivers peak torque at only one end of stroke. Use of canted arms can often reduce actuator size, weight and cost for valves with appropriate torque demand characteristics.

Rotork Australia
www.rotork.com

Particulate respirator for food and beverage manufacturing

Due to high hygiene standards, protection of food from contamination must be considered when developing personal protective equipment for the food and beverage industry.

The Aura particulate respirator 9422+ from 3M is staple free and blue in colour. It is suitable for use in handling and processing operations which expose workers to respiratory hazards from dusty elements like grains, flour, coffee, sugar and flavouring chemicals in concentrated form.

3M Personal Safety
www.3M.com/au/PPESafety

NEW PRODUCTS

Safe radios for fuel industry workers

The core business of New Zealand Oil Services Ltd (NZOSL) is the operation, maintenance and development of the energy storage terminals across New Zealand. It provides terminal services and management of incoming product via shipping and tank truck loadings.

NZOSL Terminal operations manager Kerran Deihl manages and monitors the transfer of fuel products between the port, storage facilities, trucks and service stations for NZOSL. A recent upgrade to Motorola MOTOTRBO digital radios on the network has provided reliable communications with intrinsically safe devices, which has improved the safety and productivity for the business.

Deihl explains the radios are durable and the staff are confident in using them: "We treat radios as personal protection equipment (PPE), so they must be intrinsically safe. We needed the green stamp to make sure all staff - managers, drivers, control centre, contractors - have something reliable, operating on a reliable system."

The digital radio rollout has resulted in a number of benefits including: a safer workplace; clearer, reliable audio; durability; autonomy; and improved productivity.

"Black spots and drop-outs during conversations - highly undesirable in this industry - don't exist anymore," says Deihl. "Motorola earpieces have been critical so we still get clear audio in noisy environments, such as when loading fuel. Even though there's more than 110 decibels of noise with hearing protection, we have good results. Using the microphone we avoid lots of wind noise too."

Deihl explains there is also future potential for the system with lone worker safety applications. He says: "We're trialling the man-down system, activated by the balance switch or lack of activity. Due to the nature of our products, we avoid people working alone as much as possible, but if they have to, we want the control room to be instantly notified of anything unusual. We're also looking into GPS for staff locations, as well as direct dial-out to emergency services."

The technology partner for the Motorola MOTOTRBO digital radios upgrade was i-see Security & Communications, and Deihl said the staff were very reliable, knowledgeable and easy to deal with.

Motorola Solutions Australia Pty Ltd
www.motorola.com/au

NEW
PRODUCTS

Light-duty truck with safety features

Hino 300 Series is a light-duty truck with standard vehicle stability control and a suite of safety equipment.

According to the company, it is the first light-duty truck in Australia to include vehicle stability control (VSC) as standard equipment. VSC acts as an additional layer of safety by applying selective braking to individual wheels, assisting the driver in maintaining control of the vehicle.

It incorporates traction control, and is designed to help prevent the vehicle from skidding out of control should it deviate from the driver's intended path through a corner.

It is recognised by experts across the world as being active safety technology that saves lives.

The VSC and traction control system can be switched off - to assist in control of the drive-wheel traction when the vehicle is in muddy conditions.

Other safety features include dual SRS airbags, four-wheel ventilated disc brakes, electronic brake force distribution (EBD), anti-lock braking (ABS) and front under-run protection (FUPS).

Hino Australia
www.hino.com.au

Automatic bin tipper

The Actiskip Dumpmaster from Actisafe is an automated system that safely handles and empties standard-sized dumpster bins. Suitable for most industrial businesses, warehouses, government offices, service stations, fast food restaurants, clubs, pubs, schools and TAFEs, the device is of particular use when the bins are heavy or in frequent use.

Designed to eliminate back strain, it can be used in situations where there is an OHS imperative to safely handle dumpsters. The device uses a simple bump mechanism to release the skip into the waste container.

Actisafe
www.actisafe.com.au

WHS A MAJOR FOCUS AT AOG 2015

With the high-profile Western Australian Parliamentary Inquiry into "mental health impacts of FIFO work arrangements" set to table its findings in early March, the Human Capital stream at AOG 2015 on Thursday, 12 March in Perth should attract attention.

A special panel session on FIFO Mental Health will focus heavily on the parliamentary enquiry, which has attracted media attention on the back of a number of alleged FIFO-related suicides.

Dr Graham Jacobs (MLA), who is spearheading the parliamentary enquiry, is a keynote speaker and a participant in the AOG FIFO Mental Health Panel; he will provide tremendous insight into the issue. Dr Jacobs is joined on the panel by WA Chamber of Minerals and Energy (CME) Deputy Chief Executive Nicole Rooke and TLC directors and psychologist Greg Bayne and Alistair Box.

Australian human capital specialist Lisa Costa, who has played a major role in pulling together the program for this stream at AOG, says this is a major issue for the resources sector.

The Global Human Capital Trends session will be chaired by Wirrpanda Foundation chairman and former West Coats Eagles AFL star David Wirrpanda and features a presentation and workshop on the Global Human Capital Trends Report. Julie Harrison, a Partner specialising in Human Capital at Deloitte in Perth, will provide an oil and gas perspective and an update on what can be expected to be found in the report when it is handed down later this year. The session will also feature a presentation on 'Ensuring Competitiveness Through Productivity: The importance of workplace relations reform' by Steve Knott from the Australian Mines and Metals Association.

The Human Capital Key Issues and Insights session features presentations on 'From Green to Brown to Gold: Using the Science of Change to ensure Operational Readiness for Asset Optimisation Projects' to be presented by Corrie Scheepers and Melissa Bell of the Terrace Initiative; 'Employee Engagement in the Oil and Gas Industry' presented by Fiona Scullion of The Right Group and Maud Kay of Rigzone; 'On the Waterfront; An Indigenous perspective'

presented by Wayne Bergmann of Aboriginal Maritime; and 'O&G Workforce Planning' presented by Sam Russell and Craig Bonanno, both of the Rhodes Business School (Australia). This will also include the FIFO Mental Health Panel discussion and a presentation on 'Managing Human Capital: Key issues and insights' from Clinton Strahan of Strahan Consulting. This session will wind up with an interactive play and workshop about workplace bullying entitled 'Much Ado about Hector' featuring Angela Sanderson-Green from The Experience Lab and Franca Sala Tenna of EEO Specialists.

With a strong focus on safety, AOG will also feature a key stream entitled **Managing Contractor Health and Safety** with a full program of critical topics and high-quality speakers put together in collaboration with the Safety Institute of Australia and IFAP.

Topics and speakers for this stream include:

'Rethinking Contractor Safety Management', presented by keynote speaker Greg Smith of STE Safety & Legal; 'Drafting Offshore Commercial Contracts to Manage Health and Safety Risks', presented by Sam Witton of Herbert Smith Freehills; 'Contractor Management - What Have the Courts Said?', presented by Rowan Kelly of Herbert Smith Freehills; 'Contractor Engagement: Delivering better safety outcomes can enable better cost and schedule management', presented by Graham Punler of Worley Parsons Services; 'Raising the Bar: How essential contractors were dragging kicking and screaming into a New Zealand smelter's exemplary safety journey', presented by Stephen Young of the Victorian Institute of Occupational Safety and Health (VIOSH), Federation University, Australia; and 'Contractors are Not Footballs so Please Don't Kick Them!', presented by Michael Gray (MG Training and Development).

There will also be a panel discussion on 'Drilling Down to It: Managing safety on and offshore' with a legal panel comprised keynote speaker Greg Smith, Sam Witton and Rowan Kelly; and 'Up Close and Personal with Safety Leaders' a facilitated panel discussion with Aaron Neilson of safesearch, Gavin Guyan of NOPSEMA; Neil Yann of Technip Oceania, Rhonda Yoder of Chevron Australia and David Provan of Origin Energy. ⓢ

Small DC servo motors extended encoder range

maxon DCX motors have online configuration and an automated production facility. This enables the user to directly modify the features of the motor and select various gearhead and encoder options suitable for many safety, construction and industrial manufacturing applications.

The selectable range of encoders has increased with the 3-channel range of optical 2RMF and SCH sensors. Once the encoder is selected, the resolution option is given with selectable counts per turn from 3000 to 5000. The encoders feature a wide input voltage range from 4.5 to 30 VDC. The output signal is EIA standard RS422 using a 26C31 driver.

With the configuration tool, the user can select a low-backlash gearhead or maxon can supply zero-backlash high-reduction gearheads that, when used in conjunction with the 5000cpt will give a 20,000 quad count position capability. Multiply this by the gearhead ratio selection and the result is an accurate positioning drive.

maxon motor Australia Pty Ltd
www.maxonmotor.com.au

Emergency stop buttons

The SNH emergency stop buttons communicate with the safety switching devices of Series 4000 and the safety controls Samos and Samos PRO from Wieland Electric. They are used in almost all industries, from elevators to packaging systems. Available as built-in or surface-mount versions with a standardised installation diameter of 22 mm, the button can be integrated in an operator panel and also directly mounted to a machine using a surface-mounted housing.

The contact blocks provide various wiring options as normally closed and/or normally open contacts. Additional normally open contacts can report their status to a PLC. A separate contact element monitors the safe connection between the emergency stop button and the switching contacts. This will avoid accidental failure and prevents the buttons from being circumvented.

All emergency stop buttons are contacted using detachable screw connection terminals. Variations with integrated LED lighting as well as buttons with blocking protection sleeves are available to avoid accidental operation. As emergency buttons must latch when they are operated, solutions with key and rotary switches are available for unlocking. Emergency stop buttons can be used for protection degrees up to IP69K.

The seven different sizes of the operating component can be combined with numerous switching options resulting in a variety of switching variations.

Treotham Automation Pty Ltd
www.treotham.com.au

Chemical protective garment

DuPont has introduced theTyvek 800J protective garment, which is designed to provide extra liquid repellency, even under pressure, while still providing a level of breathability and a high level of comfort.

The Tyvek 800J provides a good balance of protection, durability and comfort. It uses 'impervious technology' to achieve an effective barrier against many low-concentrated, water-based inorganic chemicals (even under pressure) and small-sized hazardous particulates, as well as oil repellency. The fabric is antistatically treated. Silicon is not added.

Applications for the garments include those in very humid applications requiring chemical, liquid protection and/or oil repellency.

Typical activities include industrial cleaning, work at petrochemical installations, in sewers and maintenance operations.

Features, benefits and standards for the Tyvek 800J include: chemical protective clothing, Category III, Type 3-B, 4-B, 5-B and 6-B; EN 14126 (barrier to infective agents), EN 1073-2 (protection against radioactive contamination); antistatic treatment (EN 1149-5) - on inside; stitched and over-taped seams for protection and strength; Tyvek zipper and zipper flap for enhanced protection; additional taping of cuffs, ankles, hood and zipper flap are required to achieve a type 3 liquid tightness; and face, wrist and ankle elastication for good fit.

DuPont (Aust) Limited
www.dupont.com.au

Safety handling initiative introduced on mine site

Recently, Tyco staff working on mining sites in Newman, WA, initiated a new safety handling improvement that has dramatically reduced exposure to situations which could lead to injury. The ingenuity of Tyco's staff is an excellent example of how Tyco, which openly encourages staff to discuss workplace safety, is supporting its EHS goal of 'Zero Harm to People and the Environment'.

The safety modification was designed to reduce the enormous levels of manual handling by vehicle system technicians, a recurring issue that staff experienced while carrying out servicing on customer vehicles, particularly large mining excavators.

While servicing the mobile aqueous film forming foam (AFFF) systems, the machine needs to be discharged. This involves purging the ring mains with water and air, and then refilling and recharging the system.

To do this, vehicles are fitted with three retractable hose reels which are filled with air, water/foam and nitrogen. The air is provided by an air compressor on the back of the service truck, which also drives a pneumatic water pump, pumping water for cylinder refilling and ring main purging.

According to Christine Cotton, Tyco's regional general manager for Western Australia, "Previously, our technicians would be required to carry the foam concentrate up the machine ladders in 20 L drums, making several trips. Some of these systems can require up to 56 L of foam concentrate and the ladders are steep and slippery. The mandatory three points of contact, a basic safety guideline when ascending and descending ladders, simply cannot be maintained."

The modification initiated by Tyco staff means that technicians now only need to return to the vehicle once, switch the valve over on the water hose reel from water to AFFF, then turn on a 12 V pump mounted inside the driver side cabin. The foam concentrate is then drawn from a tank mounted on the back of the trucks and pumped up to where the technician needs it. When the foam concentrate tank requires refilling, a quick fill point has been installed at ground level allowing easy refill back at the depot, eliminating the need for technicians to fill the tank by hand on the back of the truck where they could be exposed to a working at heights issue.

"This initiative is a wonderful example of how our business collaborates on workplace safety. We have been so impressed with this new staff safety initiative, we have subsequently made improvements to all four service trucks," said Cotton.

Tyco Fire & Security
www.tycofireandsecurity.com.au

Heavy-duty foam hand cleanser

Deb Australia has developed GrittyFOAM, a foam heavy-duty hand cleanser which contains non-abrasive 'bio-scrubbers' suspended in a rich cream foam to give a deep clean without damaging the skin. It has been designed for use in workplaces such as manufacturing and construction, where regular handwashing using appropriate effective hand cleansers is important to remove potentially irritating contaminants.

3 mL of the foam liquid is dispensed on to the hands as 15 mL of cream foam, providing up to 47% more hand washes/L than traditional dispensing systems. This can result in users reducing the amount of handwash used, which reduces the amount of chemicals used on the skin and disposed into the environment, as well as reducing water and energy use. The foam is available for use in a stand-alone dispenser or as part of a skin protection centre which incorporates a pre-work cream and after-work cream, in accordance with best practice guidelines.

Deb Australia Pty Ltd
www.debgroup.com/au/

Longer static eliminator

The Exair Long Super Ion Air Knives range has expanded from 60″ (1524 mm) through to a maximum length of 108″ (2743 mm). All knives 60″ (1524 mm) and longer are now made in a one-piece construction, which ensures seamless airflow and eliminates coupling multiple short-length air knives together. It also decreases overall height by ½″, making it suitable for tight spaces.

The longer air knives neutralise static electricity while blowing away dust and particulates from wide webs and printed surfaces, paper, plastics, wood, acrylic and 3D shapes. The wide laminar airstream full of static eliminating ions is effective at high speeds and provides good cleaning up to 6.1 m away. The device can be used to eliminate poor print quality, dust attraction, tearing, jamming and related equipment downtime from processes such as laminating, printing, routing and thermoforming. The air knife is efficient, adjustable and will operate effectively down to 5 psig using a minimal amount of compressed air to entrain high volumes of surrounding room air. The shockless design is UL Component Recognized to US and Canadian safety standards and there are no moving parts to wear out. A factory-installed plumbing kit is also available for easy connection to the plant's compressed air system.

Compressed Air Australia Pty Ltd
www.caasafety.com.au

NEVER JUDGE A GLOVE BY ITS COVER

Impacts to the hand and wrist are not an uncommon occurrence in the Australian oil and gas industry, resulting in injuries, lost work time and stress on injured parties' families. Personal protective equipment (PPE) is the last line of defence - not the first - against many industry hazards and is most effective when applied correctly to the hierarchy of controls and strategies implemented by workplaces to protect their workers.

With the oil and gas industry currently experiencing a boom in some states in Australia, it is imperative in this time of prosperity that both employees and employers remember the importance of the role that PPE plays - especially gloves - as hands are important tools that don't come with spare parts.

"It is a common misconception that all personal safety items, including gloves, are subject to and must meet all the mandatory standards that are in place in Australia," said Richard Donarski, SAI Global's Team Leader - Health & Safety, Product Services - Assurance Services.

"But the reality is, as many standards aren't legislated, some manufacturers choose not to apply certification to their manufacturing processes. The consequence being that the very products designed keep you safe may not necessarily do their job as expected."

Elliotts has worked tirelessly over the past two years with Richard Donarski and the SAI Global team to have all of its oil and gas-specific, impact-protective gloves from the Mec-Flex range independently certified to the AS/NZS2161.3:2005 standard.

Designed specifically to protect the wearer against impact injuries, bruises and pinched fingers in the oil and gas and mining industries, the Mec-Flex Oiler series provides good top-of-hand and finger protection with a palm design offering grip, high tear and abrasion resistance. The range includes: Mec-Flex Oiler, which is designed as the 'all-rounder' glove for the oil and gas and mining industries; Mec-Flex Oiler Pro, which provides the highest levels of abrasion, cut (level 5) and tear resistance; and Mec-Flex Oiler XTR, which has excellent grip and top-of-hand protection. Ⓢ

Elliott Australia Pty Ltd
www.elliottaustralia.com

Safety controllers

With a width of only 45 mm, the Samos Pro Compact safety controller is suitable for machine and industrial applications.

Complemented with graphic programming tool Samos Plan5+, the module comes with 16 safe inputs, four safe outputs, four safe configurable inputs/outputs and an exchangeable 512 Mb program memory. The SD memory card is easy to handle, thus saving time during commissioning, copying and if service is required. A library of certified, powerful function blocks is available for programming the system using the software.

Integrated USB and ethernet interfaces enable system access at any time. Suitable for a range of industries, the device can also be used under harsh ambient conditions thanks to its switching capacity of 4 A at every single output of the system and a temperature range of -25 to +65°C. Other features include modular expandability for up to 168 safe inputs and all inputs and outputs feature unambiguously assigned visual displays, which clearly indicate the operating status at any moment.

The module meets relevant safety standards, including SIL CL 3 according to EN 62061 and PL e/category 4 according to EN ISO 13849-1.

Treotham Automation Pty Ltd
www.treotham.com.au

Safety benchmarking program

The Safety Climate Survey is designed to help measure safety climate, motivations, perceptions and self-rated behaviour. It is tailored to individual organisations and is a predicator of safety behaviours, organisational safety performance and the effectiveness of safety interventions.

The survey design is based on organisational and safety climate theory, psychological theory, previous empirical research and a continuous development process. It is based on the Nordic Safety Climate Questionnaire (NOSACQ-50) that has been developed and refined over the past 10 years by a team of recognised occupational safety researchers.

Generative HSE has a benchmarking program that provides Australian organisations access to a mini version of the survey free of charge. The program is providing key insights to participating organisations and establishing important industry benchmarks.

Generative HSE
www.generativehse.com

Container handling for modernised intermodal terminals

Four Konecranes Rail Mounted Gantry RMGs will go into operation as part of expansion and modernisation projects at private rail freight operator Pacific National's Sydney and Melbourne intermodal terminals.

The all-electric, hydraulics-free RMGs will be used to load and unload containers to and from trains and road trucks, the essential part of intermodal terminal operations. Pacific National customers at these terminals include companies from the mining, manufacturing, grain, construction, metal and retail sectors.

The cranes will be equipped with Konecranes' Active Load Control (ALC) technology, which can ensure fast, precise and safe container handling by eliminating container sway. ALC allows optimum container handling cycle times to be reached in all operating conditions - even with an inexperienced operator. The RMGs will be under Konecranes' service contract, which can minimise maintenance costs and downtime. The cranes will also be equipped with Konecranes' Truconnect remote monitoring, enabling remote diagnostics for maintenance purposes.

"With the new RMG cranes and other upgrades in systems and infrastructure, we will significantly improve the capacity and productivity of our largest intermodal terminals. These cranes will be a big part of the future success of our company," says Pacific National Crane Project Manager Rodney Burfoot.

Konecranes Australia
www.konecranes.com.au

NEW PRODUCTS

RCD/safety switch protection

Under new Workplace Health and Safety regulations, all workplaces are now required to provide RCD/safety switch protection to socket outlets up to 20 A (previously it was only required if a circuit was being upgraded or modified).

NHP is able to assist with such protection using its extensive range that meets the needs from single-phase through to three-phase earth protection. The range also includes units for retrofit so that a regular circuit breaker can be removed and replaced with an RCBO without the requirement for further switchboard modification.

The NHP MOD6 M6RCBD range is suitable for retrofitting in typical insulated load centres and the NHP DIN-SAFE DSRCBH range is suitable for use in a commercial/industrial metal-type switchboard as both of these are the same width as regular MCBs for single-phase applications. There is also a three-phase solution in the DIN-Safe range.

If the switchboard requiring protection is a little older, NHP also has an SRCB range to replace the larger, older black NEMA-style circuit breakers which enable a simple replacement. This range also includes an adaptor to suit older Email, Heinemann, Cutler-hammer switchboards.

NHP Electrical Engineering Products Pty Ltd
www.nhp.com.au

In-vehicle video surveillance camera controller

The security of public transportation and logistics systems is a growing concern for modern society. As a consequence, bus and truck video surveillance systems are being implemented by schools, public transport and shipping companies.

With this in mind, Aaeon has released the entry-level fanless AEC-VS01 Box PC specially designed for IP camera interfacing and control applications. The device controls the cameras, and users can ensure security by continuously monitoring and marking events that occur throughout a transport route.

The device is based on the Intel Atom D2550 processor multicore processor and provides an energy-efficient processing platform. It is equipped with one SODIMM socket supporting up to 4 GB of DDR3 800/1066 system memory, two Gigabit RJ45 ethernet ports and four PoE (power-over-ethernet) ports, four USB 2.0 ports, three RS232 ports and one RS232/422/485 port for communication.

A 2.5″ SATA 6.0 Gbps hard drive can be internally mounted for operating system and data storage while an internal CFast slot will support the next-generation Compact Flash storage cards. System expansion is also possible via an internal Mini-Card slot allowing optional wireless LAN/Bluetooth or GPRS/3G interfaces to be installed. The device provides VGA video output for graphics displays.

The four PoE ports allow users to easily install IP cameras anywhere without the need for a local power source. This simplifies cable installation and reduces the total cost of video surveillance systems and its maintenance. Its compact size and vibration-resistant aluminium case make the device suitable for vehicle installation.

Interworld Electronics and Computer Industries
www.ieci.com.au

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Transport operator upgrades its forklift fleet

ABC Transport has replaced its seven Toyota 62-8FD25 2.5-tonne, engine-powered counterbalance forklifts with new models at its Darwin depot, one of the company's three depot locations.

The company runs a successful line haul business between Darwin and Adelaide, servicing businesses and communities - including remote areas of the Northern Territory, Western Australia and South Australia - with general freight requirements.

The seven Toyota 8-Series forklifts are used to unload and load freight to ABC Transport's prime movers, which deliver and collect freight at the Darwin depot on a daily basis.

ABC Transport CEO Jamie Eccleston said Toyota product, which had been in use since the Darwin depot was established in 2006, performed above expectation in an environment where the freight type constantly varied.

"We have a lot of freight coming into Darwin every day and it's always different because we service a variety of customers," Eccleston said.

"The feedback I've received from my operators is that the Toyota forklifts are easy to operate and they're also quick and stable, which means the job gets done efficiently.

"We also see a direct benefit to the business with Toyotas because they run trouble-free and we have the support of really helpful after-sales service.

"We don't have a lot of time to spare and when we need service they're in and out quickly, job done," Eccleston added.

Toyota Material Handling Darwin branch manager Paul Allen said Toyota's 8-Series forklifts provided the ability to enhance efficiency in busy depots where drivers contended with different types of freight.

"ABC Transport has a great history with Toyota forklifts going back to when the Darwin depot was established," Allen said. "The 8-Series does everything they need, with a tight turning radius and Automatic Fork Levelling Control, which is ideal when handling a wide variety of items. "The safety features also provide peace of mind. Toyota SAS detects instability and corrects it to help prevent tip-overs. This works hand in hand with the Active Control Rear Stabiliser, which locks the rear axle if SAS detects any problems.

"Operator Presence Sensing also helps to prevent dangerous movement by preventing the forklift from moving unless the operator is properly seated," Allen added.

Toyota Material Handling Australia Pty Ltd
www.toyotamaterialhandling.com.au

NEW
PRODUCTS

Lighting system to delineate danger zones

The Duro-Flash lighting system features six heavy-duty lights in a recharging carry case. Designed to provide a safe, economical alternative to a standard flare for delineating danger zones, the system can be used to mark off hazardous roads, show safe driving areas under water, direct traffic or warn of a breakdown.

Available in red, blue or a combination of both, the double-sided lighting system can be sighted from both directions. With die-cast aluminium construction, it is designed to withstand a drive-over weight of up to 9000 kg and is sealed to protect against water and dust, making it suitable for use in both floodways and extreme dust situations.

The individual lights are stored in a heavy-duty carry case which doubles as a charging unit using a cigarette lighter adapter. LEDs on the outside of the case show when the units are fully recharged and the lithium battery lasts for approximately 5 h between charges.

Vision Safe (PPE)
www.visionsafe.com.au

Motor arc protection relay

The P+B Motor Arc Protection Relay (MAP) from Control Logic is a sophisticated digital signal processor-based, phase-sensitive, short-circuit/overcurrent and series arc detecting protection relay. It has been specifically designed to be used on low- or medium-voltage, three-phase, direct-on-line motors.

The device monitors both current and voltage phase angles along with the current magnitude of the connected motor circuit.

It is designed to detect low-current, phase-sensitive, short-circuit conditions, which would normally go undetected with conventional short-circuit protection. This detection not only applies to the motor, but also to the trailing cables, junction boxes and cable connections.

It also provides proactive protection by detecting onset conditions before fault maturity has developed, which reduces the risk of equipment damage during fault withstand and also reduces the risk of fire and the potential risk to personnel. Unlike conventional arc fault protection systems that can be expensive to install as they require optical detection sensors, the MAP instead uses current transformers.

Control Logic Pty Ltd
www.control-logic.com.au

Workplace heat stress monitoring program

The Katestone Heat Manager software program is designed to forecast when workers are more likely to suffer from heat stress. It can also determine how much water should be made available to workers and how to reschedule work rosters during extreme heat events.

On a daily basis, the program is capable of autonomously running thousands of risk assessments for a workplace and alerting managers to issues before they arise.

By reviewing decades of weather data for a site, and profiling individual job conditions, it is able to build a baseline 'risk profile' for a workplace on a job-by-job basis. It can then estimate lost work hours due to heat stress for each worker on each job.

For each risk assessment, the program builds a 'Heat safe plan' that calculates required water per worker and total water per shift. The forecasts enable site managers to plan water rations when working away from running water.

The program can optimise breaks during the best times of the day and in the right duration, to minimise total break time, thereby maximising productivity.

Suitable for workplaces in Australia that want to minimise the impacts of heat stress, possible applications include mining and gas sector, sporting event management, construction and personal fitness.

Katestone Pty Ltd
www.katestone.com.au

Lift trolley

The Foldalift lift trolley is suitable for raising products onto a van, truck, desk or bench and can be used as a 'pull back' (two wheels) or 'horizontal' (two wheels and two castors) trolley. The 500 mm square deck lifts from 165 to 1050 mm high using a hand 'brake' winch that is completely silent.

Versatile to use, the trolley has dual ball bearing 250 mm dia rear fixed wheels (with 50 mm wide treads suitable for easy use over grating), and 80 mm dia front castors with brakes. The removable deck can be stowed separately, or it can be fitted neatly behind the fold-up legs, enabling it to be stowed using minimal space in a van or truck.

With a 130 kg capacity, the winch uses a 2:1 lift system, which means lifting the load takes half the effort of a direct lift winch system.

The trolley can rotate on its own axis, which makes negotiating narrow passages easier. The 250 mm high deck carriage has two loops to enable the optional adjustable strap to be fitted in order to constrain a load.

Made from a fully zinc-plated silver finish for a rust-free, scratch-resistant long life, the trolley's overall width is 620 mm, so it can fit through doorways easily. The height is 1405 mm and folded depth is 450 mm.

King Materials Handling
www.kingmaterialshandling.com.au

RESOURCES

Key safety leaders to gather in Brisbane to discuss workplace safety

More than 2500 decision-makers from workplace health and safety (WHS), operations, maintenance, technical and engineering backgrounds will gather in Brisbane from 22-23 April 2015 for Safety in Action. Formerly the Queensland Safety Show, the Safety in Action Brisbane workplace health and safety event will feature an exhibition with more than 100 exhibitors and a seminar program at the Brisbane Exhibition and Convention Centre.

It's estimated that work-related injuries cost the Australian economy more than $60 billion a year, specifically impacting small businesses. The event will explore the latest in work health and safety measures, as well as discuss how to minimise the economic burden of work-related injuries.

Mental health and wellbeing will be a key focus of the seminar series, with industry professionals discussing the 2015 theme 'Realising proactive safety methods to encourage workplace health and wellbeing'. Confirmed speakers include Nick Arvanitis, Senior Project Manager from beyondblue; John Fell, General Manager at Advanced Safety Systems Australia (ASSA); Sally Kirkright, CEO of AccessEAP; and Marc McLaren, Director of Generative HSE.

The expo will showcase a range of products, services and the latest safety developments. Key exhibitors include WorkCover Queensland, Workplace Health and Safety Queensland, Millsom, myosh, Bradley Australia, Atom Supply Group, beyondblue and Aegis Safety.

A new feature of 2015 is 'Innovation Hour', which includes fast-paced and informative demonstrations of the latest products/services from five to six exhibitors.

Attendance at Safety in Action Brisbane is free and open to any business and professional with a safety interest.

Co-located is the Safety Institute of Australia's Brisbane Safety Conference, which will provide high-level, in-depth analyses of safety legislation, regulation and workplace WHS policies across Queensland. For more information, visit www.siasafetyconferences.com.au/brisbanepr.

For further information about Safety in Action Brisbane, visit www.safetyinaction.net.au/brisbanepr.

New WHS laws for mining begin

The new health and safety laws for NSW mining, the Work Health and Safety (Mines) Regulation 2014, together with the *Work Health and Safety (Mines) Act 2013*, started on 1 February 2015.

The new laws replaced the *Coal Mine Health and Safety Act 2002* and the *Mine Health and Safety Act 2004*. There will no longer be separate mine safety legislation for coalmines, metalliferous mines and extractives mines.

NSW Government trade and resources has included information about the new mine safety laws on its website, including transitional arrangements and frequently asked questions. The transitional arrangements have been put in place to allow time for duty holders to understand and comply with their obligations.

The new laws are designed to increase harmonisation between the different states and territories of Australia. They have been developed in consultation with other states, in particular the other major mining states of Western Australia and Queensland. The new mining-specific laws have also been developed to align with and build on the Work Health and Safety Act and Regulation.

The new regulation incorporates amendments to the draft regulation identified through the public consultation process. These amendments include retaining existing NSW legislative requirements that achieve consistent safety standards but do not increase regulatory cost.

Short courses on emergency management

The Risk Management Institution of Australasia (RMIA) has added to its program of short courses with a one-day seminar on emergency management. The courses will be in Melbourne on 4 March; Sydney on 11 March; Perth on 22 April; and Brisbane on 8 May.

Course presenter David Martin, managing director of DavRisk and Resilience Solutions, will skill participants on current procedures for dealing with emergencies.

The course will focus on assisting organisations to implement best practice in emergency management and evacuations from crisis events, for example, storms, floods, earthquakes, fires, lightning strikes, power supply outages and terrorist attacks.

"Emergency management is people oriented and organisations must focus on staff, contractors, volunteers and anyone else for whom they may be responsible in a crisis event," Martin said.

"All organisations need emergency management and emergency response plans that comply with facilities management standards and must ensure people are trained and the plans tested regularly. Even organisations that consider they have state-of-the-art emergency management procedures can discover gaps in their thinking and can overlook important elements in our technology-driven world."

Martin said sound emergency management could save lives, protect assets and provide protection from adversity. The advent of social media has meant crises are more visible and organisations' reactions to them are on prominent display. The course will also cover integrating other phases of crisis management, including business continuity and disruption-related risk management. The course is designed for HR managers, property and facility managers, crisis and business continuity professionals, work health and safety personnel, risk managers, senior managers and supervisors.

Functional safety program for Australian industry

© iStockphoto.com/svengine

IICA has developed a Functional Safety Engineer training course for Safety Instrumented Systems. The course is being assessed by TÜV Rheinland, and IICA expects to have approval from them in early 2015. Applicants with at least three years of applicable experience who successfully complete the course and exam will be issued an FS Engineer (TÜV Rheinland) certificate by TÜV Rheinland. The course has been developed in Australia for Australian industry by Bob Weiss, formerly of Honeywell. Bob has more than 30 years' experience in Functional Safety and acted as Honeywell's FS instructor for many years.

The course contains:
- Completely new content structured around the IEC 61511 life cycle, and emphasises what you have to do to comply;
- Vendor-neutral material;
- Balanced theoretical and practical presentation using modern interactive presentation, case studies, discussion and video demonstration; and
- Some non-examinable advanced material for more experienced participants.

This course is suitable for engineers and designers with some experience in Safety Instrumented Systems (SIS). Engineers from non-process industries with experience in functional safety in their discipline (eg, machine protection, aviation, rail) and looking for an understanding of how functional safety is applied in the process industries will also find this course appropriate.

Engineers who do not satisfy the experience requirements for the FSEng (TÜV Rheinland) certificate, but who are looking for an understanding of the key principles, will find the course useful and can apply for certification later when they have gained the requisite experience. The course is not suitable for recent graduates with limited experience.

"There has been a growing need to comply with process safety design standards for several decades," Weiss advises. "This new course addresses the gaps in industry's understanding of the standards and poor implementations in the past. Functional Safety Engineering training today needs to cover not only the theoretical fundamentals but also the practical techniques of achieving a compliant design and ensuring this passes through to the implementation stage. I am excited to develop this new course with IICA."

The course duration is four days plus a half-day exam. Examinable material is clearly identified with time for revision included to maximise chances of exam success. Registrations for 2015 courses are currently being taken. For more information, see www.iica.org.au/info/education/.

About IICA
The IICA is the principal industry organisation in Australia representing the instrumentation, control and automation industry. From its inception in 1943 it has:
- Provided a forum for IICA members to enhance their knowledge
- Furthered the science and practice of measurement, instrumentation, control and automation
- Improved the status of its membership
- Fostered high standards for design and manufacture of instrumentation, automation and control techniques
- Encouraged education in the theory and practice of instrumentation, control, automation and allied subjects
- Promoted the standardisation of measuring instruments, control and automation
- Supported improvements in standards and legislation affecting the practice of instrumentation, control and automation The IICA is a not-for-profit association.

www.iica.org.au

Mental Health

Australia's productivity is suffering because too many businesses are not taking action on mental health, the chair of the National Mental Health Commission, Prof. Allan Fels, said late last year.

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Prof. Fels was speaking to businesses leaders at the Trans-Tasman Business Circle event in Sydney in December 2014, where he shared the findings of a new report on what has been proven across both mental health and management research to improve mental health at work.

The report, *Developing a Mentally Healthy Workplace: A review of the literature,* was produced by the University of New South Wales and the Black Dog Institute for the Mentally Healthy Workplace Alliance. It identifies six success factors for a mentally healthy workplace and a five-step process for embedding them.

Six success factors for a mentally healthy workplace:

1. Smarter work design - eg, enhancing flexibility around working hours and encouraging employee involvement.

2. Building better work cultures (organisational resilience) - eg, encouraging a culture of flexibility, building a safe and positive work climate, implementing anti-bullying policies, enhancing organisational justice, promoting team-based interventions such as employee participation and providing group support, providing manager training and managing change effectively.

3. Building individual resilience - eg, providing resilience training, coaching and mentoring, and physical activity programs.

4. Promoting and facilitating early help-seeking - eg, conducting wellbeing checks once appropriate support and resources are in place, providing stress management for workers with reported stress, using Employee Assistance Programs which utilise experienced staff and evidence-based methods and peer support schemes.

5. Supporting recovery - eg, providing a supportive environment, providing supervisor support and training, facilitating flexible sick leave arrangements, providing return-to-work programs, encouraging individual placement support for those with severe mental illness.

Increasing awareness - eg, providing mental health education and training.

Five-step process for embedding a mentally healthy workplace, which requires an ongoing, staged approach:

1. Establishing commitment, leadership and support.

2. Conducting a situational analysis - looking at what is working and what isn't.

3. Identifying and implementing the workplace mental health strategy.

4. Reviewing outcomes.

5. Adjusting intervention strategies.

Prof. Fels said: "Poor mental health is a significant burden on our economy. The direct financial impact of mental ill-health on Australian businesses is in the vicinity of $11 billion every year, largely due to absenteeism and reduced productivity.

"The opportunity cost of not promoting good mental health at work, and not supporting people who have mental illness or care for others who do, is therefore very, very high. Nonetheless, almost all of us have witnessed people and practices in the workplace that ignore the needs of individuals or sometimes the whole team, and the resulting impacts such as staff turnover, absenteeism, low productivity and poor morale."

'Developing a Mentally Healthy Workplace: A review of the literature', is available for download at http://www.mentalhealthcommission.gov.au/media-centre/news/workplacementalhealthreport.aspx.

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