

Hazardous Engineering Solutions



Incorporating Health & Safety

The International Magazine For
Hazardous Area Professionals

November 2016 | Issue 32

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The International Magazine For
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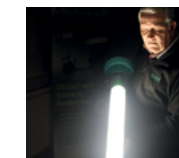
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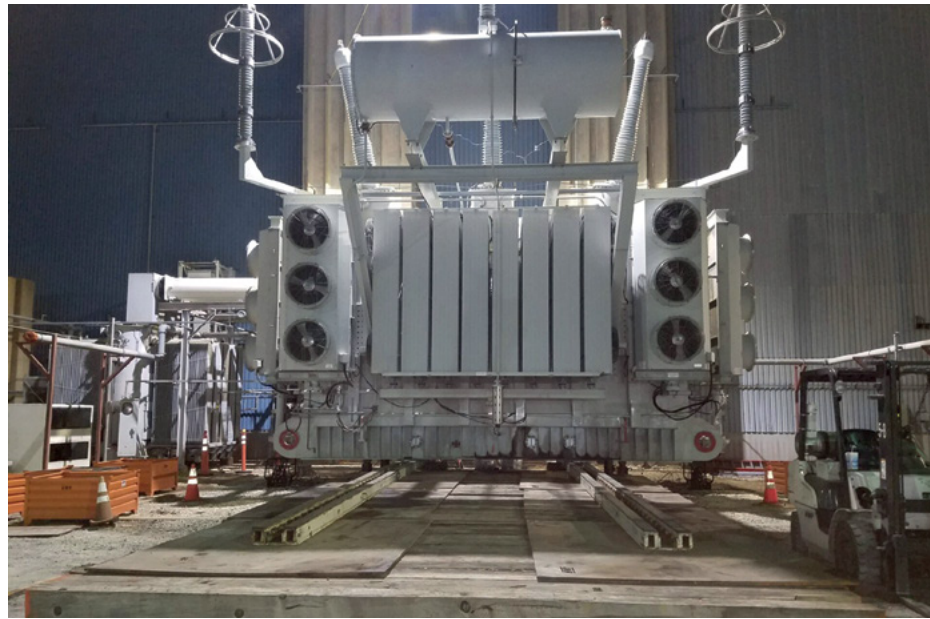
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Hydraulic Skidding System Completes Emergency Operation at Electrical Plant

St Louis, Missouri-based heavy rigging and haulage specialist HWP Rigging used a Hydra-Slide HT500 system to skid a failed transformer out of an electric generating facility and replace it with a new one during an emergency callout recently.



One of the Missouri plant's four generators was out of service due to the failing step-up transformer, which increases the voltage of electricity that is generated by the turbine so it can be transmitted through the grid to homes and businesses.

The 500t capacity heavy track system skidded the transformer 120 ft. clear of the existing foundation before a replacement was unloaded from a self-propelled modular transporter (SPMT) and slid into position, again utilizing the HT500. Both transformers weighed approximately 400 tons; the replacement unit was designed to be as close a match to the original as possible.

Steve Hentrich, project engineer, HWP Rigging, said: "We started removal of the failed transformer on a Friday afternoon and worked around the clock until the replacement transformer was set in its place, working five consecutive shifts until Sunday morning. We spent two to three days on the front and back end mobilizing equipment and assembling / disassembling the modular trailer onsite. The work was completed ahead of schedule and without incident."

HWP owns four HT500 skidding systems, from Canada-based manufacturer Hydra-Slide, which are typically employed in the power distribution sector. They are one of the most cost-effective and accurate methods for moving, loading or unloading such transformers, in addition to generators, compressors, pressure vessels and other machines where a rigid, load carrying track is required.

Turn the tables

HWP is widely acclaimed in the heavy rigging and haulage sector for utilizing a custom 500-ton capacity turntable, also manufactured by Hydra-Slide. The turntable, designed for rotating heavy and oversized loads, was first used to lift and remove an overhead bridge crane in a foundry, hold it for a short time, and place it back on its foundations in one continuous motion.

Hentrich said: "Typically cranes are put in place before completion of a new building so that it is possible to set the equipment through the roof of the building with a mobile crane. In this case the work had to be done with the building roof and

walls intact, which eliminated the possibility of using conventional construction equipment to do the work."

HWP used a set of hydraulic gantries and the turntable to lift the 75-ton load and rotate it almost 90 degrees to clear its foundations before lowering it to the ground. After a short time the crane was again lifted, turned back to its original orientation using the turntable, and set in place on the foundations.

The turntable measures 10 ft. in diameter and weighs approximately 5 tons. Hentrich explained that the parameters were selected for ease of transportation and handling. It can be placed on a road truck and hauled to a jobsite as needed, he said. It is light enough to be handled with a rough terrain construction forklift, which are commonly found on jobsites. The turntable is sufficient to handle most large distribution power transformers.

Increasing demand

Hentrich said: "In recent years we have observed an increasing demand for transportation and rigging of new power distribution and generation equipment to replace our ageing infrastructure. This equipment includes large power distribution transformers, steam turbines, generators and industrial electric motors. In some cases new equipment is installed as part of a scheduled maintenance project. Other times failed or failing equipment must be quickly replaced in order to restore power to homes and businesses."

He added: "The Hydra-Slide skidding systems and turntable are an integral part of many of these projects. Their products can be utilized to efficiently and safely move large loads in confined spaces and allow for precise placement and alignment of heavy loads. We will continue to collaborate with Don [Mahnke, president] and Janine [Smith, vice president] to find innovative lifting and rigging solutions that make our work safer, faster and more efficient."

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Intertek approved as a Certification Body and Test laboratory for non-electrical equipment for use in hazardous areas

Intertek, a leading total quality assurance provider to industries worldwide, is now an approved International Electrotechnical Commission Explosive (IECEX) Certification Body and Test laboratory and can provide global third party approval on non-electrical equipment for use in hazardous areas.



This will give confidence to the global petroleum, chemical and pharmaceuticals, and food industries in the safety of the non-electrical equipment on their sites.

Intertek's UK Chester and Leatherhead laboratories have tested European equipment under the ATEX Directive for over 10 years, and with the recent arrival of ISO/IEC 80079-36 and ISO/IEC 80079-37



standards and their incorporation within the IECEx certification scheme, these laboratories are now approved to accept global applications from equipment manufacturers, package assemblers and end users for certification to these standards. They can also provide guidance on the application of the IECEx scheme and discuss individual manufacturers' responsibilities and routes to compliance within the scheme.

"In a market where safety is paramount, operators of sites such as oil refineries, process plants, chemical works, food processing sites or off-shore platforms look to mitigate the risk to people and plant through third party approvals of equipment or accreditations. With the extension of the IECEx scheme, which is already a well-established scheme for electrical equipment, Intertek can now give these operators the confidence that non-electrical equipment on their



site does not pose an explosion safety risk," said Andrew Austin, UK Head of ATEX Notified Body at Intertek and responsible for IECEx activities.

Until now there was only a European Directive, the ATEX Directive, addressing the explosion safety risk associated with non-electrical equipment, with no international third party approval route for global supply, and the existing IECEx scheme only covered electrical equipment. However with the introduction this year of international standards ISO/IEC 80079-36 and ISO/IEC 80079-37 and their incorporation within the IECEx certification scheme, Intertek can now provide the industry with global third party approval for non-electrical equipment.

The aim of the IECEx scheme is to have one Certification scheme for any hazardous area product, recognised and accepted throughout the world.

For More Information Visit:
<http://www.intertek.com/hazardous-locations/>

One And Two Input Counters Simplify Applications In Hazardous And Safe Areas

BEKA associates new one and two input pulse Counters can economically perform industrial counting functions in hazardous and safe areas.

All models have large easy to read displays with optional backlighting, isolated synchronous pulse and 4/20mA outputs, plus dual alarms.



The two input Counters can display the sum or difference of the inputs in engineering units and when configured for use with a quadrature encoder, the position and speed of a shaft or cable can be shown.

Intrinsically safe models with ATEX, IECEx, US and Canadian certification may be installed in gas and dust hazardous areas. For applications in Zone 2 or 22, Ex nA and Ex tc approval of the stainless steel model permits installation without the need for Zener barriers or galvanic isolators, significantly reducing cost.

Although well documented and easy to configure on-site, Counters can be supplied configured with requested scale card marking for no additional charge.

For further information including datasheets and certificates please visit http://www.beka.co.uk/panel_mounting_counters.html or phone the BEKA sales office on 01462 438301.

Global Shop Solutions Names Nick Knight Sr. Director of Customer Services

Global Shop Solutions, a developer of enterprise resource planning (ERP) software simplifying manufacturing for 40 years, has named Nick Knight as the firm's new Senior Director of Customer Services.

At the age of 16, Knight began his career in the manufacturing industry when working at a machine shop in Houston, Texas. While there, he gained extensive experience using Global Shop Solutions ERP software. After joining Global Shop Solutions he displayed a knack for helping customers use the software to improve their production process, and went on to build an industry-leading consulting and project management group.



"Nick honestly cares about helping our customers improve their businesses, and he instills that quality in all who work with him," says President & CEO of Global Shop Solutions, Dusty Alexander.

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Clean, Safe & Hygienic Materials Handling

Materials handling specialist J D Neuhaus (JDN) can provide a whole host of innovative hoist solutions for working environments that demand high levels of cleanliness and hygiene.



Industries such as food, beverage, pharmaceutical and chemical must all conform to strict regulations when it comes to clean working practices. Utilising the appropriate materials handling equipment, therefore, is a paramount requirement and to meet this, JDN has created a nickel-plated hoist to ensure the highest level of cleanliness.

Designed specifically for clean operating environments, this hygienically robust hoist can be configured in their standard Profi TI series for 0.5 to 1 tonne, or big bag handling unit and low headroom trolley hoist for 1 tonne. All of these feature outer surfaces plated in 25 µm thick nickel.

Where Profi hoists are required to run on overhead rails, both manually operated and motorised trolleys can be provided with nickel-plating features on the gearbox/motor and body.

For applications, such as commercial kitchens, the JDN Profi hoists offer a number of useful standard features including, high corrosion and humidity resistance, ease-of-cleaning and suitability for lube-

free operation. JDN also has a number of stainless steel options including the chain, load hook and sleeve and top hook.

JDN's nickel-plated big bag handling air hoist is part of a range of products designed for applications that need to process powdered, granulated or other free-flowing materials which need regular, high volume top-ups in order to maintain the high levels of production. These hoists are suitable for handling food products such as salt, sugar, flour and starch, as well as chemical and pharmaceutical products. All these air operated JDN products provide explosion protection features for safe operation when being used in potentially explosive work environments.

Big bag handling air hoists are available at carrying capacities of 1100 and 2200kg (with 6 bar air pressure). They can be supplied in two configurations of single or twin lift/load hooks. The single hook unit is designed for operation with a standard cruciform lifting beam. The large distance between the hook and the chain box advantageously eliminates potential collisions between the load and the chain box.

Twin load hook models operate with more complex multi-point crossbeam designs, or for standard lifting beams featuring twin suspension points. In addition, they can be operated with synchronised lifting operation.

J D Neuhaus has a history that can be traced back to 1745, and is now in its seventh generation of family ownership. Visitors to the Hebezeug-Museum (Hoist Museum) in Witten, are able to see for themselves the remarkable history of this progressive company. With over 200 employees across the group, the company manufactures pneumatically and hydraulically-operated hoists and crane systems up to 115 tonne capacity from its state-of-the-art facility in Witten, Germany. This globally unique specialisation means that J D Neuhaus has set the quality standard for the market; a move that has seen the company become the established global



leader in its technology field with customers in more than 90 countries worldwide.

Over 80% of production from the Witten plant is exported, which is why the company has long-established subsidiary companies in France, Great Britain, Singapore and the USA, all of which have helped create a tight-knit global network in collaboration with international partners.

Resilience and reliability are the key product differentiators setting JDN apart from their competitors, thanks largely to the explosive protection rating which makes their hoists ideal for use even in the most challenging of operating environments. Extreme applications include oil and gas exploration in arctic temperatures as low as -45°C, along with underwater tasks such as ship hull repairs, and plenty of others in demanding sectors like mining, the chemical industry, heavy plant construction and many areas of logistics.

J D Neuhaus' wide portfolio of services goes beyond manufacturing and also includes equipment assembly, inspection, maintenance and general overhaul, along with customer training courses and other consultative services.

Further information is available on request to:
 J D Neuhaus GmbH & Co. KG, 58449,
 Witten-Heven, Germany
 Telephone: +49 2302 208-219
 Fax: +49 2302 208-286
 e-mail: info@jdn-group.com
 www.jdn-group.com

BSRIA Announces The Passing Of Reginald Brown, Head Of Energy & Environment, BSRIA

It is with great regret that BSRIA has announced the passing of the Head of its Energy & Environment team, Reginald Brown, who passed away at home on Thursday after a short illness.



pipework installation, heat pumps and CHP. He was a member of the Microgeneration Working Group on heat pumps and various BSI committees for water in buildings issues.

Julia Evans, Chief Executive, BSRIA, said: "We were very sad to learn of the passing of Reginald who had been with BSRIA for 27 years and our thoughts go out to his family and friends.

He was not only an enthusiast and expert, but someone who devoted 27 years of his working life to BSRIA. Reginald will be remembered with warmth and genuine affection by his many colleagues, not only at BSRIA, but in the wider engineering community. He was not only known throughout the EU and internationally, but also gave much-valued advice to the young engineer network and students.

Reginald loved what he did and it was his passion and hobby as much as it was his work. The industry will be a poorer place from his passing.

He was an extremely valued and experienced research engineer, scientist and consultant providing technical input on energy and water issues in buildings including the investigation of commissioning problems, material failures, risk assessment and applications of renewable energy.

Reginald was a highly-respected lecturer for BSRIA who spoke at many flagship BSRIA events and training courses over the years.

Much of the detailed research and legislative work Reginald was involved in had a positive impact on industry resulting in improvements."

Reginald authored many BSRIA guides, most recently: Legionnaires' Disease – Operation and Maintenance Log Book; Water Treatment for Closed Heating and Cooling Systems; Underfloor Heating and Cooling; Heat Pumps; Retrofitting of Heating and Cooling Systems; and Heating Controls in Large Spaces.

A Chartered Engineer, Reginald was an expert assessor for the Energy Technology List (Carbon Trust), Secretary of the ADJ Working Party (for CLG) and a past-Chairman of the Education Committee of the European Heat Pump Association.

Reginald joined BSRIA in 1989 and was Head of Energy & Environment from July 1993. He was a popular and highly regarded expert in his field which was acknowledged within BSRIA, its members, the wider industry and the media.

His recent UK and European work included photovoltaic applications, heat pumps, combined heat and power, domestic and commercial hot water, wind turbines, water conservation, variable speed pumps, legionella, natural ventilation, industrial air filtration, domestic boiler efficiency, sustainable development, low carbon solutions and environmental guidance.

His many consultancy activities included diverse projects on chilled ceilings, energy from waste, domestic heating and ventilation, thermal performance of heat exchangers, the design of HVAC test facilities, safety and reliability testing and numerous failure investigations. His most recent project was the development of a methodology for detecting carbon monoxide in ceiling voids.

Reginald provided expert input for both Water Regulations and Building Regulations advisory committees, assisted the HSE on Legionella and authored and contributed to several guidance publications for CIBSE and BESA in the areas of

The latest Explosion Proof LED beacons have enhanced output and field-replaceable colour lenses.

E2S, the world's leading independent manufacturer of Visual and Audible life-saving signals, has completed a significant development with the introduction of beacons having output enhancing field-replaceable colour lenses and LED light sources.

These latest features, previously introduced with the GRP GNEx and stainless steel STEx families, have now been applied to the popular LM6 alloy BEx family. The lenses, moulded in UV stable polycarbonate for long life and toughness, with integral prismatic structure for enhanced light output, are available in a choice of colours to suit each application. Whether on-site or in stores, being able to replace a lens without special tools is a benefit many will no doubt soon be taking for granted. The LED version beacon has a high output Cree® array, orientated to optimise visibility in any direction. It is user configurable as a steady light for status indicator use, or one of five flashing modes for warning signal duties. DC voltage versions

feature three remotely selectable stages enabling multiple warnings to be signalled from one device. While some "in bright daylight" applications will only be satisfied with a Xenon lamp light source, the performance of the E2S high output LED in combination with the new lens provides a practical low power with high output (effective intensity candela) option suitable for many applications.

Approved to IECEx and ATEX standards for all Zone 1, 2, 21 & 22 applications with ingress protection ratings of IP66/67, all models have multiple cable entries and large termination areas having both in and out terminals, plus included as standard are stopping plugs for unused M20 entries and stainless



steel lens guard and stainless steel mounting bracket. They are also available as multiple unit assemblies pre-wired with and without junction boxes.

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Ion Science Expands Marketing Team To Enhance Global Delivery Of Gas Detection Instrumentation

Ion Science is continuing to increase headcount with a newly expanded marketing team to enhance global delivery of its occupational health and environmental gas detection monitoring instrumentation.

The Cambridgeshire-based company has appointed Emily Lane and Gracia Scott as Marketing Assistants while Andrew Scott joins as Multi-media Designer.

Long-standing Ion Science employee, Andrew Scott, joined the company in 1996 as technical, customer and sales support in the special projects department. Since then, he has enjoyed a variety of key roles including Product Manager and Project Manager for business development.

Emily joined Ion Science from ECS Global Inc where she was Account Manager responsible for the day-to-day management of global accounts. Prior to this, she was Visitor Experience overseeing the CEO's itinerary, internal meeting reservations and ensuring

excellent customer service.

Gracia started working at Ion Science as a Trainee Marketing Assistant after finishing her A-levels at a Cambridge Sixth Form College. She progressed to Marketing Assistant shortly after a successful year's service.

Ion Science Marketing Manager, Sam Holson, heads up the department and comments: "The newly expanded marketing team will help support our rapidly expanding business and portfolio of market-leading gas detection instrumentation over the next few years. Demonstrating a passion for marketing, Andrew, Emily and Gracia will work closely with distributors, sales and Ion Science overseas offices



in Italy, Germany and the USA to help ensure continued growth both in Europe and the rest of the world.

Sam adds: "With this infusion of energy, drive and enthusiasm, we can promote the Ion Science brand and its products more effectively."

For product information please contact:
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Display System Gets The Message Across About Work Place Hazards

Providing information and communicating with staff and colleagues in the workplace is essential, particularly when hazards, incidents or near-misses occur which may impact on others.

An effective, low-cost solution to 'getting the message across' is the Near Miss / Incident Reporting System available from T Cards Direct which is an easy way to manage and document health and safety issues.

Compliance and accountability is becoming increasingly important in the work place and this system provides a record and history with traceability from the time the incident occurred. The standard display board is available in a 3 column format with standard 50 or 30 cards deep and measures 409mm wide and is supplied fully assembled, complete with headings and 200

Incident T Cards. There is also the option to have the system made to a bespoke format.

A good example of where the T Cards Near Miss Incident Reporting System has been appreciated is at the Greencore Group plc, a leading international manufacturer of convenience foods with 22 manufacturing sites in the UK. David Brady, Health and Safety Manager at the Greencore Evercreech site in Shepton Mallet, Somerset, comments, "Safety is of paramount importance at our site and identifying and communicating potential hazards to all staff is a crucial part of our health and safety practices". David continued, "The T Cards Incident

Reporting System has proven to be an effective and very visible way of informing our staff of the situation and status of incidents whilst warning them of potential hazards".

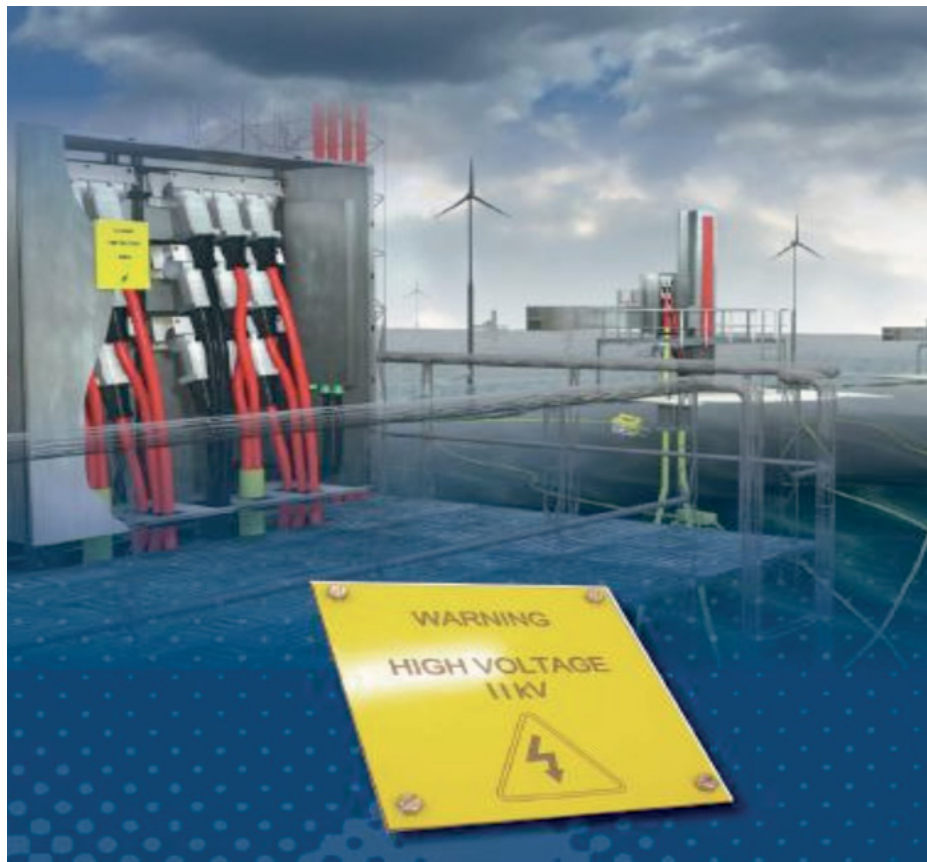
When sited at the entrance to the work area, a risk/hazard is noted on a card and then placed in the board alerting everyone who enters that area. Once attended too the card is moved from the 'Issue Raised' section to the 'In Progress' section, then turned around to green when safe.

The Near Miss / Incident Reporting System is one of a range of display and information systems available from T Cards Direct who offer over 45 years of experience in providing effective and affordable information systems.

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www.tcardsdirect.com

Comprehensive range of Tranberg Ex High Voltage Solutions now available from R. STAHL

R. STAHL, a manufacturer of safety equipment for hazardous areas, has launched a comprehensive range of Ex High Voltage Solutions for Zone 1 and Zone 2 hazardous areas, as well as for safe areas.



The new range of medium and high voltage connecting systems is one of the largest ranges currently available globally from a single source. The range includes Tranberg A-Block medium voltage (MV) enclosures, high voltage busbar enclosures (up to 36kV), topside umbilical termination units, cable junction boxes, plug-in connectors and cable cleats. These systems are available as standard products or can be custom-engineered to suit specific customer requirements. Typical applications include power distribution for subsea applications, hazardous areas in offshore and onshore oil and gas installations, high voltage solutions, Arctic installations and saline atmospheres.

The Tranberg TEF 1060 A-Block range of medium voltage enclosures are manufactured to IEC60079 and certified to ATEX and IECEx standards. These flexible, compact, stainless steel enclosures are suitable for use in Zone 1, Zone 2 and safe areas and are available up to 11kV (as standard) and are suitable for DC solutions. The A-Block solution can be used with current loads of up to 100A.

The Tranberg TEF 1060 Busbar system is also available for use in Zone 1, Zone 2 and safe areas. These ATEX and IECEx-certified high voltage enclosures are available up to 11kV in three different designs: rectangular, curved and G-profile. These



high voltage enclosures use tinned copper busbars combined with Ex-certified isolators.

The SHDSS (Sapphire) range of cable cleats are metallic cable cleats that are designed, manufactured and tested in accordance with the International Standard 'cable cleats for Electrical Installations' IEC61914:2009. The 316L stainless steel cable cleats are designed for high short circuit conditions on cables held in single and parallel/flat formation to ensure cable retention without damage. Combined single (M12) and two-bolt (M10) fixing designs are available. Low Smoke and Fume (LSF) liners are supplied as standard, helping to restrain the cables within vertical applications, providing a layer of protection between the cable sheath and the cable cleat during normal operation where thermal elongation of cable occurs. This protects the cable from chafing on any mounting surface due to differential movements such as those found in marine and offshore installations.

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On-Site N₂/O₂ Generation Saves Thousands In Comparison With Typical Outsourcing Costs

Offering the ideal solution for any plant looking to eliminate the financial burden of buying-in nitrogen and/or oxygen, the latest N₂ and O₂ high purity, low energy nitrogen and oxygen generators from Hi-line Industries feature a host of advanced functions, including O₂ analysers and energy control as standard.



The generators are the perfect answer to companies spending thousands of pounds annually purchasing bottled or bulk tanks of the planet's most abundant gasses. In contrast, the potential savings available by producing nitrogen and oxygen on-site, on-demand, are little short of staggering, even more so when including the extra costs associated with delivery, storage, the hire of bottles or receivers, safety procedure creation, and insurance.

The proven technology employed at Hi-line for N₂/O₂ generation is based on simple PSA (Pressure Swing Adsorption) procedures. Here, twin-tower CMS (carbon molecular sieve) beds adsorb and

regenerate to remove either N₂ or O₂ depending on requirements. Importantly, this allows users to generate nitrogen at the purity required for the application, such as 95% or 98% for example. This is far more cost-effective than buying-in expensive UHP (Ultra High Purity) nitrogen at 99.9999%, which is normally sold as standard without any option for the customer.

Among the many areas where the uptake of Hi-line's N₂/O₂ generators has been particularly high is MAP (Modified Atmosphere Packaging), a technique used for prolonging the shelf life of fresh or minimally-processed foods such as meat, fish, cheese,

fruits and vegetables. The mixture of gases in the package depends on the type of product, packaging materials and storage temperature.

A recent case in point can be seen at a well-known food packaging company that was spending in excess of £120,000 per annum on N₂ for MAP. Moreover, this was excluding the delivery charges associated with a tanker arriving at the plant four times a week. In response, Hi-line was able to supply a N₂ generator skid for a one-off fee of £55,000. Now, the plant produces its own N₂ for only the cost of air compressor energy; a huge saving year-on-year.

Nitrogen gas is commonly used in a wide range of industries where safe, inert environments are required. This includes the petroleum, chemical, pharmaceutical, paint and varnish industries as well as the production of ferrous and non-ferrous metals, together with electronic and glass products.

Although Hi-line offers a standard range of generators for N₂/O₂, each generator is customised in line with user requirements. Before a generator is manufactured, Hi-line will have already carried out a free site survey of N₂/O₂ usage, and at what rate/purity. The team will also assess energy costs versus the current cost of gas and present a proposal indicating the potential savings available. This will include total cost of ownership, which is very low as the only relevant energy source used by the generator is the air compressor. Ultimately, Hi-line generation units are designed to facilitate rapid payback, thanks to the significant cost savings that can be achieved.

Further information is available from: Hi-line Industries Ltd, 5 Crown Industrial Estate, Oxford Street, Burton on Trent, Staffordshire DE14 3PG
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www.hilineindustries.com

Meeting The Demand For More Complex Process Control Systems

Process control systems in almost every industry are becoming more complex; they are subject to greater scrutiny due in part to the demand for improved efficiency, regulatory compliance and higher levels of automation and plant integration. The need for bespoke or low volume system design is also growing as a result. Bürkert has addressed this challenge by developing the Systemhaus approach, where regional technology solutions centres sit between the sales offices and larger-scale manufacturing facilities, solving problems and building innovative systems on-demand.

Neil Saunders, UK General Manager for Bürkert, explains: "The market for small volume, specifically tasked control systems is certainly growing and the operational environments in which this equipment is working are complex and governed by a considerable amount of legislation such as ATEX or food and pharmaceutical safety and cleanliness standards for example. End users realise that transferring the responsibility of meeting these demands to a trusted supplier can reduce costs and increase operational efficiencies.

"The diversity of requirements and the global appetite for these systems means that manufacturers need to take a new approach in order to meet demand. Bürkert manufactures over 100,000 different products for example, typically valves, actuators, sensors, controllers and combined devices. Applying these products to scenarios that require specialist assemblies requires skill and experience as well as an imaginative approach, but without the volume constraints of large scale production runs. This is where we use our Systemhaus network."

The definition of a bespoke control system means that the designers have to start from the ground up, working closely with the client to establish what will be delivered by the new system and how best to achieve it. Often existing technology and components will have to be integrated with unique parts and custom designs in order to achieve the best solution.

The principle of outsourcing this type of project is considered by the vast majority of OEMs as an essential part of manufacturing strategy that allows them to remain competitive in a rapidly changing global market. In practical terms this strategy can deliver a number of improvements such as reducing supply chain management costs while improving production agility and the use of internal resources. Jens Fuhrmann, General Manager at Bürkert's

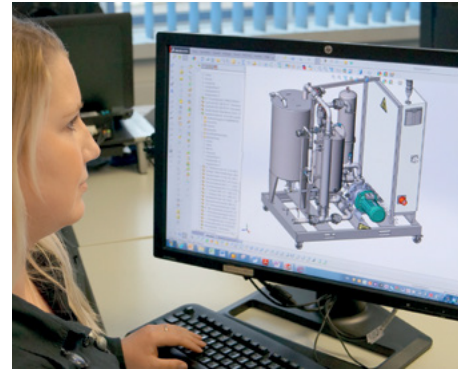
Dortmund Systemhaus, comments: "Modern process control systems can encompass a huge range of parameters, deliver micron levels of accuracy and repeat millions of cycles, all the while recording data for standards compliance or historic analysis. However, designing, building and delivering a new process control system requires considerable expertise and flexibility, as well as an in-depth knowledge of the industry standards and specifications.

"The most effective way of delivering a bespoke project is to assign a team that contains all the necessary skills and expertise to design, simulate, prototype, construct and test the finished product. Working closely with the client, this team has the ability to ensure the most efficient methods are used to develop an idea into the completed design.

"These teams can procure all the necessary components, both from our own product lines and from external suppliers in order to achieve the most effective solution for the client. At the same time all the components must be seamlessly integrated and work together to deliver the required control structure and meet the necessary industry standards."

Each industrial sector has its own requirements and these must be adhered to if any new product is to be accepted under the current certification scheme. There are statutory requirements of HACCP (Hazard Analysis and Critical Control Points) for the food processing industry that set very precise standards with regards to cleanliness, safety and product quality. These standards are aimed to protect the consumer and they are enforced rigorously in most countries by regulation.

Industries that are required to adhere to stringent hygiene regulations need process control systems that will seamlessly integrate into the existing, predominantly stainless steel process structure.



Bürkert ensures that all pipework associated with a design is fabricated and welded by engineers that are ASME (American Society of Mechanical Engineers) coded for process piping.

Similarly, components and systems operating in potentially explosive atmospheres must be suitably tested and certified as safe for such an environment using the ATEX and IECEx standards. This is an area that requires considerable expertise and design knowledge in order to deliver a packaged solution, typically on a skid or in a cabinet that is tested and guaranteed to operate safely once installed.

Neil Saunders concludes: "The benefits of collaborating with an industry leader that has the resources and expertise to deliver bespoke or short run projects should not be underestimated. The potential to reduce manufacturing lead times and costs as well as providing a guaranteed fixed cost of ownership allows a client to concentrate on their core business and improve their own productivity.

"The depth of knowledge and experience within Bürkert ensures that the finished solution will fully satisfy the client's expectations. The completely in-house build programme will ensure that all the necessary components, including HMIs, PLCs and their programming will be integrated and ready to connect with the host system. We continue to support all our customers with their own projects, however, sometimes you need the scope and resource of an original equipment manufacturer to deliver. The fact that we are using our Systemhaus resources more and more in the UK just serves to underline the fact that the market has changed and will continue to do so."

For further details visit:
www.burkert.co.uk

Oman Turns To WEG To Enhance Gas Recovery In Major Depletion Project

Achieving maximum productivity from oil and gas fields is the prime goal for the petrochemical industry but the extraction process becomes more difficult as fields become depleted.

With this in mind, leading global manufacturer of motor and drive technology, WEG, has developed bespoke variable speed drive systems to help with extraction from some of Oman's older oil fields where the natural pressure is beginning to fade.

Boosting extraction from depleting reserves is part of a US\$33 billion project which aims to enhance Oman's hydrocarbon production capabilities and help the country broaden its economic base. It is expected that Oman will unlock about one trillion cubic metres of natural gas over the next 25 years, representing a long term sustainable competitive feedstock for its petrochemical industry. Plans are also afoot to develop downstream industries such as the production of Ethylene Dichloride (EDC), Caustic Soda and other chemicals.

As part of this major effort, the PDO Saih Rawl Field Depletion Project, Phase 2, will see US\$550 million invested on developing a daily gas production capacity of 30 million cubic metres, which will be fed to the existing Saih Rawl central processing facility. Extra compressors will be installed to increase the pressure so that gas continues to flow, enabling the field to feed the liquefied natural gas (LNG) industry while offering a back-up when other plants are shut down for maintenance.

Electric motors will play a key role in ensuring that such compressors run efficiently, smoothly and reliably, as they will be responsible for driving their suction and discharge cooler fans. Bearing in mind that electric motor-driven systems (EMDS) are the largest individual source of energy use, accounting for 45% of the world's electricity consumption, and over half of this energy demand originates from motors used in fans and compressors, 1 Indian company Larsen & Toubro decided to partner with WEG to equip the main gas compressor with an efficient drive system, which could endure the most demanding applications.

To meet such needs, WEG has developed a bespoke solution comprising 48 30kW variable speed drives and motors and 32 15kW drives and motors, which will be supplied as systems and mounted in control cabinets, and also include a high capacity circuit breaker for emergency cut outs and

a by-pass system for DOL (direct on line) starting. Additionally, WEG has fitted its equipment with a passive input harmonic filter to reduce problems relating to mains borne corruption of the power supply, while an output filter will be used to protect the drive.

WEG's variable speed drive systems have been tested at its manufacturing facility in Brazil in the presence of inspectors from PDO and Larsen & Toubro to simulate the harsh environmental and operating conditions that may occur in the field. WEG is also conducting performance tests of the motors at the fan manufacturer's plant in Korea and has organised training sessions for PDO staff in the Brazilian factory.

Thanks to its vertical manufacturing process, WEG has also been able to supply Larsen & Toubro with all of the overloads, switchgear, relays and pushbuttons used within the drive cabinets, thus ensuring component compatibility and trouble free system building and commissioning as well as efficient ordering and delivery. Other elements in the cabinet include a control power transformer and auxiliary contactors and circuit breakers. Additionally, a door mounted control panel incorporates a backlit LCD keypad, while a redundant serial link (2 channels Modbus-RTU over RS485) provides communication to the wider control system. Finally, the control cabinets include space heaters, which are essential to withstand the extreme temperature differentials between day and night in the Oman desert, which can cause potentially damaging condensation.

"We have exceptional experience of developing complete drive solutions for oil & gas applications – both upstream and downstream – and our involvement in such a major project as the PDO Saih Rawl Field is a fine example of our commitment to help the oil & gas industry operate more efficiently and reliably," comments Colin Cox, Managing Director, WEG Middle East.

WEG offers one of the broadest ranges of energy-efficient explosion-proof motors currently available with rated power from 0.12 kW to 5.6 MW and frame sizes from IEC 71 to 800. For example,



the W22Xd IE4 Super Premium motor - the most energy efficient flameproof motor available on the market - combines explosion protection with IE4 efficiency levels and offers a long service life and low maintenance costs, helping businesses in the process industry increase productivity, improve reliability and cut costs by up to 40% compared to conventional models.

WEG's drives minimise voltage surges by carefully regulating the time between the pulses of their IGBTs (integrated gate bipolar transistors). This decreases the possible surge magnitude and also allows longer cable runs without detrimentally affecting motor insulation.

Its patented flux optimising technology reduces input current by up to 50% of the motor rated speed, which decreases motor temperature rise by as much as 11%. Insulation life, and therefore motor life is extended because it is doubled for every 10° C decrease in its operating temperature. Alternatively, output torque can be increased by 50% of the motor rated speed to suit more demanding applications.

"Thanks to this high performance drive and motor architecture, WEG products are the perfect solution for the most arduous industrial applications, such as those that are likely to be found in Oman's PDO Saih Rawl Field Depletion Project," concludes Colin. "WEG can provide the ideal explosion-proof motor for virtually every application, even with extreme operating conditions such as ambient temperatures from -55°C to +80°C and altitudes up to 5,000 m".

For more information on WEG visit:
www.weg.net/uk

Petrel Limited is a UK manufacturer of lighting and control equipment for use in hazardous areas.

The company was established over 30 years ago following a simple yet robust design philosophy to progressively develop a strong reputation for safe, reliable, high quality products.

Recently Petrel has made considerable investments to embrace LED technology within its lighting range and now provides customers with hazardous area lighting solutions that carry the benefits of longer life, lower maintenance and reduced cost of ownership. This new LED offering incorporates innovative light

engine technology designed specifically for Petrel, to deliver high levels of light output combined with low levels of power consumption, thus providing proven installation savings with low cost of ownership. The wide range of LED products includes both fixed and portable solutions in Linear and Flood/Highbay formats for Zone 1, 21, 2 and 22 applications, as well as high performance units for safe area Industrial applications.

In addition Petrel has also introduced a lighting design service to ensure that customers achieve optimum results with their installation. Since the introduction of this service in early 2016 multiple installations have been completed with both Industrial and ATEX certified LED lighting to deliver substantial savings for customers.



Above: Petrel PLX portable LED luminaire

For more information on Petrel LED lighting solutions contact us directly on: 0121 783 7161 sales@petrel-ex.co.uk Or visit us at www.petrel-ex.co.uk

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Spot on in zone 1 – versatile and robust LED floodlights

The new 6125 series (for zone 1) and 6525 series (for zone 2) floodlights from R. STAHL are designed for challenging environments such as chemical, food and oil and gas extraction. Offering a service life of 50,000 hours, they feature high corrosion resistance supported by a robust IP66/67-rated enclosure.



Energy-efficient LED technology makes R. STAHL's new generation of flexible floodlights for hazardous areas shine. High-quality TIR lenses minimise scattered light and glare effects and enable light distribution focussed on angles of 10°, 40° or 120°. The devices are therefore not only suitable for spot and wide-angle lighting, but can even be installed as pendant lights. The new 6125 series (for zone 1) and 6525 series (for zone 2) floodlights achieve excellent luminous flux: 21,000 lm in versions with 210 W power consumption and 12,000 lm in 120 W models. With this luminaire efficiency of 100 lm/W, they are not only far more efficient than conventional HID lights, but also require significantly less maintenance. The lens panel modules are equipped with hinges for easy installation, maintenance and repair of the removable components. Even under extreme conditions, the service life of these products is specified at 50,000 hours of operation

at maximum ambient temperatures. Their superior durability fully enables them to sustain challenging environments e.g. in the chemical industry or in oil and gas extraction over the long term. Their high tolerance for ambient temperatures in a very broad range from -40 °C to + 60 °C is a stand-out feature in this product class. Featuring a corrosion-resistant body and comparably low weight, these floodlights are an especially good choice for onshore and offshore applications. Special designs with heat sinks made from salt-water-resistant aluminium are also available.

For some applications such as general lighting in production and storage facilities in the food industry, they can be ordered with a scatter protection for the glass front panel. The robust enclosures provide IP66/67 ingress protection and a very high shock and impact resistance (IK10). They are available

either in powder-coated sheet steel or stainless steel versions. For explosion protection expert R. STAHL, these new floodlights are the final complement to a comprehensive portfolio of highly efficient LED lighting solutions.

R. STAHL presents further information about this new series, LED technology in general and real-life experiences with explosion-proof luminaires in harsh conditions at: www.stahl-explorers.com

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Adrian Sims, Director Of Vent-Tech Reflects On The Recent Figures Issued By The HSE Relating To Work Related Ill Health

Recent HSE figures show that more than a million people are being made ill by their work, with new cases of work related illness costing UK society £9.3 billion in 2014/2015.

Injury and ill health statistics released by the Health and Safety Executive show that an estimated 25.9 million working days were lost due to work related ill health in 2015/16.

It is estimated that 13,000 deaths each year are linked to past exposures at work, primarily to chemicals and dust. With an estimated 1.3 million people suffering from a work related illness and a steady increase in fines and prosecutions to companies, it's time that companies realise it makes economic as well as legal sense to ensure their employees are protected from harmful substances that can cause ill health. The best way to achieve this is via the installation and thorough testing and maintenance of LEV systems.

Self reported non fatal injuries have generally fallen over the last 10 years, but 14,000 new cases of breathing or lung problems are reported annually and the right LEV system could reduce this number.

A costly process?

While the cost of the correct LEV system can seem high, the right LEV system can help to increase employees attendance by reducing the time they take off for ill health – not to mention that a healthier workforce will also be a happier one.

It is vital too to choose the right supplier or the money you invest could be wasted if the system does not meet HSE standards and you end up having to change or even replace it.

Choosing an LEV supplier

When choosing a company for a new LEV system or a company to service and test an LEV system, make sure that you check the guarantees being offered by all the suppliers that you have quote and that they GUARANTEE to:



- Meet HSE regulations
- Reduce exposure to 1/10th WEL level where it exists
- Provide you with all the necessary documentation as standard

The HSE is very clear about an employer's responsibility to reduce the risk of harm to 'as low as is reasonably practicable'

This means:

- All control measures must be in good working order.
- Exposures are below the Workplace Exposure Limit, where one exists.
- Exposure to substances that cause cancer, asthma or genetic damage is reduced to as low a level as possible.

If the company quoting cannot guarantee that any system installed will meet HSE recommendations, then look elsewhere.

It is a legal requirement that a new LEV system is commissioned and has been tested properly - so why is it that some companies consider these to be 'extras' and charge separately for them. A system should have commissioning reports and an LEV log book.

At the heart of any LEV system there is one basic need – to improve your workplace environment and thus improving your workforces wellbeing.

Adrian Sims is Director of Vent-Tech, one of the country's leading consultants and providers of environmental control systems.

For more information please visit:
www.vent-tech.co.uk

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Construction Industry: Respirable Crystalline Silica Dust Exposure

Silica is a naturally-occurring substance found in most rocks, sand and clay; hence, also found in products such as bricks and concrete.

In the workplace silica exposure is a great risk for workers who perform high risk jobs such as abrasive blasting, foundry work, stonecutting, rock drilling, quarry work and tunnelling. The serious health hazards resulting from silica exposure are demonstrated by the fatalities and disabling illnesses that have occurred and continue to occur in these types of occupation.

Respirable Crystalline Silica (RCS) has been classified as a human lung carcinogen (cancer causing substance) and has been associated with 600 deaths per year; of which 450 arise as a result of exposure in the construction sector. Furthermore, its effects are also similar to those of asbestos

causing disabling or even fatal lung disease.

In Britain, RCS has a workplace exposure limit (WEL), which contains a set limit, intended to restrict the amount of RCS that a person can inhale (breathe in) every day. The WEL for RCS is 0.1 mg/m3 expressed as an 8-hour time-weighted average (TWA). Exposure to RCS is also subject to the Control of Substances Hazardous to Health Regulations 2002 (COSHH).

It is often critical to identify the sources and levels of crystalline silica exposure through the use of live dust monitors, such as the TSI DustTrak, TSI AM510 SidePak and through the use of gravimetric methods

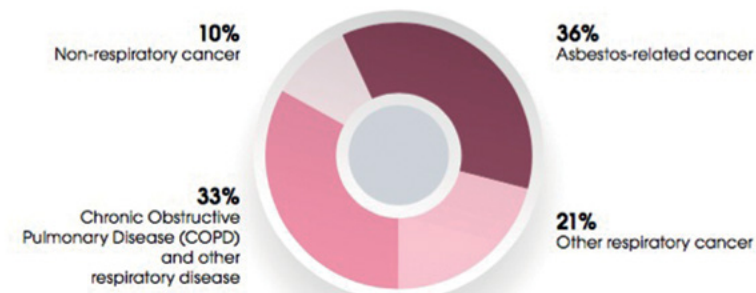


using respirable filter heads and sampling pumps, such as the Sensydine Gilair Plus.

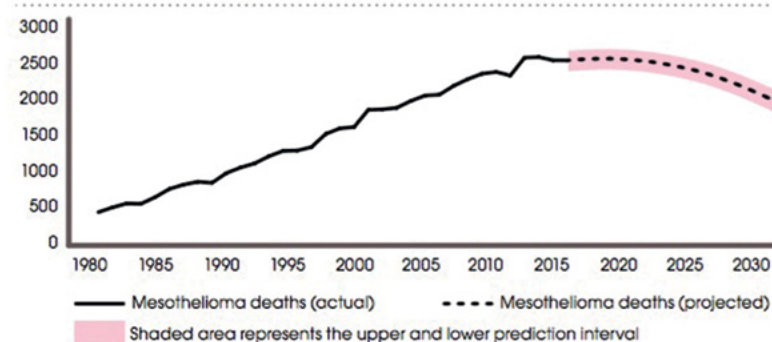
Shawcity are currently offering a £750 trade-in discount for any dust monitoring instrumentation from any manufacturer against the purchase of a TSI Environmental DustTrak Monitor.

Contact us for further information.
Tel: 01367 899419
solutions@shawcity.co.uk
www.shawcity.co.uk

Estimated current annual deaths due to work-related diseases



Mesothelioma in Great Britain: annual actual and predicted deaths



The Importance Of Simulation In Managing Risk

The latest generation of simulation tools can better train staff to deal with industrial accidents – in terms of both mitigating risk and dealing with the consequences - explains Steven Pike, Managing Director of Argon Electronics.



Industrial accidents are, thankfully, a rarity: in Europe, the number of major reported incidents has dropped steadily from 48 in 2010, to just three in 2015.

However, this type of incident – in which a process, procedure or operating system fails – can cause anything from property damage to injury and loss of life. Among those that took place in 2015, one included the release of gas and vapour from an ethylene distillation system; another involved an explosion at a pyrotechnics manufacturing plant, resulting in six deaths and significant destruction of property over a large area.

The most notorious case in recent years was the 2005 explosion at the Buncefield Oil Storage Terminal in the UK. It injured 43 people, registered 2.4 on the Richter Scale, and created a cloud of

soot and other contaminants that extended across France and Spain within 24 hours. The cost of the accident has been estimated at €1.13 billion – including emergency response measures, remedial action and compensation claims – plus a further €11.8 million in fines for the operating companies involved.

Mitigating risk

The ownership and operation of hazardous industrial and process facilities, especially those that fall under COMAH (Control of Major Accident Hazards) regulations and the Sevesco III directive, requires carefully managed processes and procedures to ensure full compliance and to reduce risk to the absolute minimum.

If processes involve flammable or explosive

materials, compliance with the Dangerous Substances and Explosive Atmosphere Regulations (DSEAR) must also form a key part of the risk management and safety strategy. Under DSEAR, an explosive atmosphere is defined as, 'dangerous substances mixed with air, under atmospheric conditions, in the form of gases, vapours, mist or dust in which, after ignition has occurred, combustion spreads to the entire unburned mixture'. (The term 'atmospheric' is taken to mean ambient temperatures and pressures, -20°C to +40°C at pressures of 0.8 to 1.1 bar.)

Other relevant regulations include the European ATEX Directives 99/92/EC and 94/9/EC, which control both the working environment and the protective equipment and systems needed to maintain the safety of employees and the workplace as a whole.

Individual industry sectors are subject to specific regulations. These create structures, within which organisations can assess and manage risk using standardised, repeatable, documented procedures. However, the hazardous nature of the processes involved – combined with the potential for human error – means there is always the possibility of an accident. The question is: how best can companies prepare for this?

Guidance and training

Many different organisations provide guidance and training courses to help managers assess and manage risk. The primary objective is to establish and document procedures, then embed them into working practices, so that unsafe systems and unwanted behaviours are eliminated. While this approach is essential, it is also critical that staff are trained to deal with an incident if it occurs: they must understand how to handle a release of gas, vapour, dust or radioactive material – which may be carried a long distance from the facility, and potentially affect on-site staff and the general public.

The challenge is to create training scenarios that replicate real-world situations, without actually releasing hazardous agents into the environment. Traditionally, this has been achieved using classroom or field-based simulations – often with small quantities of live materials or training sources, which trainees locate using conventional detection



instruments – or the use of signs and hand held notes around the training area or classroom that show the expected level of contamination readings at different locations.

There are downsides to these methods. Using real detectors in training takes equipment out of service, and may lead to it being damaged. The use of training sources, even on a limited scale, can be a risk to trainees. As a minimum, it requires compliance with health and safety regulations and limits the maximum reading that can be presented. And, while the use of printed signs is inexpensive, in practice it does little to help trainees understand the correct use of detection equipment or the best methods of interpreting readings under different conditions.

Real-world simulation

The alternative is to use a new generation of intelligent computer based simulation tools, such as Argon Electronics' PlumeSIM-SMART system. The latest version has been designed for use in a wide range of industrial scenarios, including the release of radiological, chemical and petrochemical gases, vapours or agents.

PlumeSIM-SMART is a software driven system, available on low cost annual user licences, which runs on a standard laptop connected wirelessly to one or more handheld smart devices or mobiles (SMART-SIM). These are used by students working in the designed training area, which can be up to 2,500km in area, and simulate real-life detection instruments. They are implemented as virtual devices

within each SMART-SIM and include radiological dose and dose rate meters, multi-gas detection, air monitoring and, in future, radiological spectrometry meters – as well as customer specific instruments.

An instructor can create, run and optimise each training exercise from a central point, and influence the readings that students should obtain across the training area at different times or phases of each exercise.

In the field, students see a customised display on their SMART-SIM. Readings are automatically updated in real time to reflect the impact of changing wind and weather conditions on the dispersal rate of the plume of gas or radioactivity. Other features include the ability to simulate hot spots – such as static emissions or a localised radiological source and also material fallout, deposition, persistency, evaporation and radioactive decay. The associated simulated instrument readings are automatically updated.

The actions taken by each student are automatically logged, allowing the instructor to review the choice of survey route, time taken, information collected and communicated, personal dose management and the decisions taken as a result of the readings and hazard predictions provided.

PlumeSIM-SMART can also be configured to provide an identical training regime in the classroom, with an integrated gamepad feature to allow trainees to manoeuvre through a virtual exercise space thus dramatically enhancing tabletop exercises.

Covered for COMAH

This new technology is ideal for a wide range of training scenarios, especially for industrial and process sites that fall under COMAH regulations and the Seveso III directive.

The system is simple to set up and use, yet enables intricate training programmes that reflect the challenges of dealing with complex dispersal patterns in different environmental conditions. Just as importantly, it provides detailed audit trails and can be used for training and evaluating staff at all levels of seniority and skill – including, for example, in the UK Bronze, Silver and Gold commanders. PlumeSIM-SMART also provides an effective means of demonstrating compliance and the effectiveness of response plans to regulatory authorities.

Tools like PlumeSIM-SMART offer an effective extension to safety management and training programmes – not just to help mitigate risk, but also to deal with the consequences of an accident.

For further information, please contact:
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Portable Inspection / Strip Lights:

Suitable for use in Zones 1,2,21 & 22, these lights can be used as individual units or connected together to form a complete lighting system using simple plugs and sockets.

Weatherproof to IP66/67 and impact tested to 7 Joules, they are suitable for use in the harshest environments.



The very small diameter means it can be used as a handheld inspection lamp as well as a fixed light depending on requirements.

Features

- Lightweight, ultra compact explosion-proof fluorescent light
- ATEX approved for use in Zones 1,2,21 & 22
- UV Resistant, Anti-Static Polycarbonate Tube
- Impact Tested to 7 Joules
- IP 66/67
- End of Life Protected
- 24V ac/dc, 110V ac & 230V ac
- Available as: Single light, interlinking light or a set of lights to create a system.

Floodlights and High Bay Lighting

Floodlights and High Bay lights are high output, robust and reliable LED lighting for use in oil & gas, petro-chemical, aviation, marine and utility applications.

Suitable for use in Zones 1,2,21 & 22, weatherproof to IP66 and with a robust LM6 alloy housing, all models are suitable for use in the harshest environments. Utilising high output LED light



engines, they provide excellent illumination while running very cool to ensure high reliability and long life.

All floodlight and high bay lights are fitted with custom built drivers which ensures the driver lasts as long as the LED and is more suited to the extremes of temperature encountered in an explosion-proof application.

Heatsinking and thermal management has been optimised using CFD (computational fluid dynamics) to ensure maximum heat dissipation, essential for reliable LED functionality and long life.

Models in each series are scalable and range from 3000lm units to 11,500lm units.

Features

- ATEX/IECEx approved for use in Zones 1, 2, 21 and 22
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BSRIA Awarded ISO 9001:2015 Certificate Of Registration

BSRIA Limited is delighted to announce that it has been awarded the ISO 9001:2015 certificate of registration from BSI for its Quality Management System.

Based in Bracknell, Berkshire, this registration covers all of the company operations including: consultancy and research, product testing, market intelligence, building performance testing, membership, publications, training, hire, sales, repair and calibration of electronic and electromechanical instruments.

Julia Evans, BSRIA's Chief Executive, said: "This is excellent news for BSRIA Limited and represents the gold standard in quality assessment! I would like to thank the Quality Assurance team at BSRIA Limited who led the process through, along with all the staff who also worked hard, indeed gave something extra, to achieve this important and exciting result. This demonstrates teamwork at its best.

This is certainly a moment in BSRIA's history and demonstrates our commitment and focus – not only to customers – but to quality and professionalism. The ISO registration puts customer satisfaction, quality work and thorough processes at the heart of its undertaking."

BSRIA Instrument Solutions division was awarded similar registration in the early 1990s, and BSRIA Limited also has both UKAS accreditation for a number of product and building tests as well as calibration parameters such as temperature, pressure and air velocity within the organisation.



BSRIA Limited
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Fast Electrical Circuit Lockout With The New TAGLOCK™

Brady's unique TAGLOCK™ lockout solution enables operators, mechanical engineers, maintenance and safety personnel to quickly and easily lock out electrical circuits in order to prevent accidental engagement while maintenance is ongoing.



With TAGLOCK™, the risk of electrocution and other accidents related to re-energising can be reduced.

Prevent accidents

TAGLOCK™ blocks circuit breakers in the off-position to prevent accidental re-engagement while maintenance is ongoing. By securing circuit breakers in the off-position during maintenance, the risk of electrocution and other, re-energising related, accidents with potentially severe consequences can be reduced.

Up to 4 workers

Up to 4 workers can use the circuit breaker lockout device simultaneously, each with their personal, colour-coded cable tie. When their part of the job is

complete, each worker can remove his personal tie and tag. When maintenance is done, the last worker also removes the circuit breaker lockout device to allow circuit breaker re-engagement.

Easy to apply

TAGLOCK™ can be installed quickly and easily. Apply the circuit breaker lockout device, run a cable tie through its hole and add a tag. The TAGLOCK™ lockout devices are small enough to be applied on most circuit breakers that are positioned next to each other. Run a nylon cable tie through the holes of the applied circuit breaker lockout devices to block all circuit breakers involved in the off-position. A padlock can be attached for extra security when needed.



Watch the TAGLOCK™ video on Youtube, or email Brady at emea_request@bradycorp.com for more information.

About Brady Corporation:

Brady Corporation is an international manufacturer and marketer of complete solutions that identify and protect people, products and places. Brady's products help customers increase safety, security, productivity and performance and include high-performance labels, signs, safety devices, printing systems and software. Founded in 1914, the company has a diverse customer base in electronics, telecommunications, manufacturing, electrical, construction, medical, aerospace and a variety of other industries. Brady is headquartered in Milwaukee, Wisconsin and as of July 31, 2016, employed approximately 6,400 people in its worldwide businesses. Brady's fiscal 2016 sales were approximately \$1.12 billion. Brady stock trades on the New York Stock Exchange under the symbol BRC.

More information is available on the Internet at www.bradyeurope.com

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F.E.S. (EX) team of experienced, competent personnel have proven skills within the areas of design, process safety, Health & Safety, operations, maintenance, inspections and installations within potentially explosive atmospheres.

With the requirements of ATEX (Atmospheres Explosibles) Directives within the member states of Europe and DSEAR 2002 (The Dangerous Substances and Explosive Atmospheres Regulations 2002) in the UK, F.E.S. (EX) can provide hazardous area compliance, inspections, risk assessment and project management for companies of all sizes.

To assist with this F.E.S. (EX) recently developed and marketed 'ExTrace', a unique, live inspection and management system which meets DSEAR/ATEX legislative requirements utilising, Zone 1 & 2 ATEX certified, hand held tablet and ID technology.

For more information visit: www.fes-ex.com

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Elfab manufacture full opening, non-fragmenting explosion vent designs in an extensive range of sizes, shapes and designs suitable for an array of applications. They can be used in a number of industries in order to protect against the hazards of dust explosions.

Being the first of its kind, the dual channel, remote monitoring system is capable of interfacing with any of Elfab's explosion vent designs including both single and multi-layer setups, as well as flat and domed constructions.

"GSM-Tel" is specifically designed for remote

locations, allowing for improved explosion vent monitoring from afar. In the event of explosion vent activation, users will receive a fully customisable text message signifying panel rupture without been adjacent to the process.

Upgrading to GSM-Tel allows for improved monitoring and simplified maintenance. This type of detection can also be supplied in an optional ATEX enclosure, for deployment in hazardous operating environments. GSM-Tel is a cost-effective, fail-safe solution combining reliable explosion vent technology with a modern detection system. The battery operated GSM alert system is reusable after

explosion vent actuation for long-term reliability and minimal maintenance.

GSM-Tel enhances Elfab's existing Vent-Tel detection system making it suitable for even a wider range of customers across the globe.

For further product information:
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Artidor's Specialists Design Customized Explosion-Safe Solutions

Artidor Explosion Safety B.V. is a dutch company specialized in the development and production of explosion-safe products. Artidor has 30 years of relevant experience.

In a well-equipped workshop, Artidor's specialists design customized explosion-safe solutions, usually based on existing products. A number of these products are introduced to the market as Artidor branded products. The product range includes various explosion-safe LED lighting products, sensors, magnets, pressurized systems and air conditioners.



Explosion-safe air conditioner AR051 is widely used in oil and gas extraction, the chemical and petrochemical industry and on board ships. It is certified in accordance with the European Directive 2014/34/EU (ATEX 114) and has a CE mark. Artidor air conditioners meet the requirements of product category 3G for use in Zone 2. The external unit has a compressor with a twin rotor. Good balancing helps the limitation of vibration and sound. The advanced direct current technology results in unprecedented levels of efficiency.

For further details visit: <http://artidor.com/en/>

AR-051 explosion-safe air conditioner



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Coatings Firm Pushes Safety In Poland With Pyroban Protected Tugs

A company that manufactures protective woodcare coatings in Poland has selected two MasterMover® electric tugs converted by Pyroban® to ensure complete safety when moving vessels within its potentially explosive operation.



The temperatures are also monitored leading to a controlled shut down of the tug if they exceed 135°C.

"To detect a wide range of potential hazards, system6000E features a gas detection system that uses pellistor based gas sensing technology," says Rob, explaining that when a gas is detected, system6000 will safely shut down the tug and bring it to a controlled stop, protecting staff from the risk of explosion. Operators are also assured the system is working correctly each day thanks to auto-calibration and self-testing at start up.

"We've completed an increasing number of projects with Pyroban over the last ten years," says Hugh Freer, Sales Director of MasterMover. "Pyroban understands our business and offers a proven safety solution which helps to guarantee product quality for challenging applications all over the world."

Service support is provided through the local MasterMover dealer in Poland and technicians are trained to maintain the Pyroban system.

For more information, visit:
www.pyroban.com
or www.mastermover.com.

"The flammable vapour from varnishes and woodstains containing highly flammable solvents can be ignited by the heat or sparks found within standard materials handling equipment," says Rob Vesty, Sales Manager, UK and Ireland, for safety company Pyroban.

Two electric MasterMover tugs are being used at the facility in Poland to push, pull and steer loads on caster wheels in areas where solvents are stored and transported in volume. The tugs help to reduce manual handling.

"These electric tugs presented many possible ignition sources that needed to be addressed," explains Rob. "Pyroban converted the two tugs to ensure that they are safe for operation in potentially

explosive atmospheres and comply with the strict requirements of the ATEX 2014/34/EC Directive."

The MasterMover MT400 electric tugs concentrate the load weight directly over the drive wheel making it easy for the operator to manoeuvre. Traction is achieved by a hydraulic weight transfer system giving the operator up to 4,000kg capacity for loads on casters.

The "ATEX" conversion by Pyroban features system6000E™ which includes the use of restricted breathing enclosures to house many of the components. Surface temperature cooling to T4 (135°C) also ensures the motors, brakes, electrics and other components remain below the auto-ignition temperature of the flammable solvents.



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New Standard For Forklifts Used Where Powders And Dusts Could Ignite

The new EU standard EN1755:2015 is set to impact the design of materials handling equipment intended for use in Zone 21 and 22 hazardous areas, where powders and dusts are present. Food production and storage operations, the chemical industry and many other manufacturing and logistics operations will be affected.



"A spark from unprotected electrical equipment on a forklift, excess heat from the engine, motors, brakes or other components can ignite a layer or cloud of powder in the workplace," says Steve Noakes, Engineering Manager for leading explosion protection conversion company Pyroban.

Powders and dusts are found throughout industry as raw materials or as waste, the by-product of a production process. The majority are combustible such as flour, cocoa, milk, polymers and sugar, however, carbon black, aluminium and other metals are conductive.

A risk assessment will define whether an area where powders or dusts are present needs to be classified as Zone 21 (higher risk) or 22. In classified Zone 21 or 22 areas specially protected equipment should be used, categorised as either 2D or 3D respectively. Forklifts are no exception.

"EN1755:2015 will affect the design of forklifts used in Zone 21 and 22 areas in the chemical, food and drink supply chains and in various manufacturing and logistics businesses," says Steve, explaining that EN1755:2015 is the standard by which conversion companies, like Pyroban, convert forklift trucks so that they are safe for operation in hazardous areas and comply with the ATEX 2014/34/EU* Directive.

Mandatory from November 2017, the update to EN1755:2015 titled "Safety of industrial trucks. Operation in potentially explosive atmospheres. Use in flammable gas, vapour, mist and dust" brings together the latest market knowledge and solutions and references the latest standards which were not available when first issued in May 2000.

The main changes include more detailed assessment of non-electrical components such as pumps and transmissions in line with EN13463**. Safety control systems should also meet Performance Level PLc according to EN13849*** or SIL 1.

With regards to static protection, standard seats and arm rests are still acceptable with no additional



requirements for plastic parts on either 2D or 3D equipment categories. However, tyres for machines travelling over 6km/h must be antistatic and there should be conductivity to earth via two straps or conductive tyres.

For forklifts used in Zone 22 areas, electrical systems need to achieve EPL Dc**** / Category 3D (typical ingress protection to IP5X), with manufacturer self-certification. The requirements are different for Zone 21 where electrical systems need to achieve a higher level of protection, EPL Db**** / Category 2D (typical ingress protection to IP6X), with Notified Body certification. There is also a requirement for frame leakage detection and shutdown on 2D conversions.

"Pyroban's solutions for Zone 21 and 22 environments already meet many of the new safety requirements. However we are implementing the full programme in phases during this transition," says Steve. "We encourage forklift OEMs and dealers

to engage with Pyroban early to ensure they are fully aware of their responsibilities and how these changes will affect them directly."

For electric forklifts, Pyroban's Dust-tec 2D and 3D systems ensure all ignition sources such as the surface temperature of brakes and motors remain below the temperature required to ignite either layers or clouds of dust/powder. In addition, arcing and sparking components are enclosed to ensure dusts or powders in the atmosphere cannot be ignited. Non electrical risks are also addressed by appropriate explosion protection technologies. For diesel powered mobile equipment, Pyroban Dust-mech 2D and 3D provides the necessary safety and compliance, covering both the internal combustion engine and the electrical and mechanical systems within the forklift.

Pyroban systems can usually be fitted to any brand of forklift or similar equipment at the company's

factory in the UK or the Netherlands. Furthermore, if the area also carries a gas or vapour risk, the conversion can be combined with Pyroban systems for Zone 1 and Zone 2.

"We want to make the transition as easy as possible for forklift suppliers, OEMs and users," confirms Steve. "All levels of the supply chain need to be aware of the changes well in advance."

EN1755:2015 is introduced in parallel to the update to the ATEX Directive and ISO 3691-1:2011 which clearly states that with regards to safety, unauthorised truck modification is not permitted and that no alterations should be made without the prior written approval of the original truck manufacturer.

For more information on protection for areas handling potentially hazardous powders or dusts, please visit www.pyroban.com.

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