

The International Magazine For Hazardous Area Professionals

HAZARDOUS Engineering Solutions

November/December 2023 - Issue 72

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Company Number
05359182

Incorporated
09-02-2005



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i.safeMOBILE And Senseven Introduce Valve Sense For Smart And Mobile Leak Detection In Valves

Tackling the complexity of online valve inspection with a smart and mobile inspection system.

Almost all production processes require industrial valves, which control flow, prevent backflow, regulate pressure, and stop process flow when closed. As such, industrial valves play a crucial role in ensuring the safety and efficiency of production processes.

However, valves can fail in harsh operating environments

with high temperatures, corrosive chemicals and abrasive particles. To maintain valves, it's important to inspect them during operation. But inspection procedures can be time-consuming and error-prone. As a result, leaks often remain undetected for a long time, leading to a decrease in process efficiency, a loss of product quality or ultimately to unplanned downtime.

Therefore, i.safe MOBILE, together with its strategic partner Senseven, has developed the first smart and mobile inspection system for valve leak detection in hazardous areas.

"As part of modern condition monitoring programs, compa-

nies are in need for easy-to-use and digital inspection tools to quickly and independently inspect their assets and share data within the team or management", says Christoph Altman, CTO and Co-Founder of Senseven.

Valve Sense is a software guided inspection system based on i.safe MOBILE's innovative 5G Smartphone IS540.1. The modern solution connects state of the art acoustic emission sensors to the phone and this way transforms it into a mobile inspection tool.

The Senseven software on the Smartphone guides the user through the inspection process, captures sensor data, processes it, and uses algorithms and artificial intelligence to determine if the valve is leaking or not.

In the past, interpretation of measurement results was a difficult and time-consuming task for inspectors. Now, with the Senseven software, data analysis can be automated, results can be reproduced, and decision-making can be significantly accelerated.

No training or expertise is required to detect leaking valves of water, gas, steam, air, and viscous liquids with this simple solution. Companies can therefore regularly inspect their assets without interfering with the process, identify faults themselves at an early stage, and respond immediately to them.

As a result, they are not dependent on expert knowledge, can increase the efficiency of their processes, avoid additional costs, and reduce employee safety risks.

When connected to Wi-Fi or a network via SIM card, all measurements are automatically synchronized with the Senseven Backoffice, a web platform, accessible from anywhere on mobile devices or a desktop, eliminating the need for data transfer via USB or card storage.

This solves the issue of having inspection data isolated, decentralized, and often stored on individual devices. The cloud approach makes it cumbersome for managers to extract valuable information of their assets in form of automated reports. All inspection data can also be integrated to existing asset management systems to trigger internal processes.

"Valve Sense is built to handle harsh industrial environments in Ex-zones with the usual reliable safety standards of i.safe MOBILE. It offers a great opportunity for all companies with or without in-house valve inspection expertise. It is easy to use,

inspections can be performed at any time, and companies can rely on the performance of their valves without having to wait for the next maintenance cycle", comments Martin Haaf, CEO of i.safe MOBILE.

Since valves are found in virtually every production process, Valve Sense can be used in any industry and for all valve types and sizes.

The benefits in a nutshell:

- Smart and mobile inspection tool for harsh operating environments in Ex-zones
- Software guided inspection process
- Automatic leak detection with the help of algorithms and AI
- Automatic data synchronization via 5G/4G or Wi-Fi
- Customizable reporting and software integration
- Lifecycle inspection data in one platform
- Fosters collaboration across management levels and locations

Valve Sense is available to buy globally from i.safe MOBILE, Senseven or authorized dealers.

Further information, the full scope of delivery and the data sheet can be found on:

<https://www.isafe-mobile.com/en/inspection/valve-sense/is-vs1a1>.



Lumens Vs. Candela, What Is The Difference?

W

hen it comes to lighting, lumens and candela are the two metrics that are often confused. In this article, we'll explain the differences and how this will help you select the

perfect light for the job.

Lumens: Total Light Output

Lumens are the most common unit for measuring all the visible light from a given light source. Imagine the bare bulb or LED from a light inside the center of a large sphere. When all the light is measured inside the sphere it gives you the total lumen value of that light source. If the goal is to light a large area, lumens is the crucial metric for selecting the correct light.

Candela: Peak Beam Intensity

Candela is the standard unit for measuring peak beam inten-

sity. Let's imagine the large sphere from the previous example. Now, instead of the light being projected evenly over the entire surface inside the sphere, focus all that available light onto a specific section. This gives you the candela rating. If you need to project light in one direction or over a long distance, then candela is the crucial metric for selecting the correct light.

For example, sporting arenas use very high-lumen lights to bathe the playing field with a complete blanket of even lighting with no focused "hot spots." The opposite end of the spectrum would be a police cruiser spotlight with a very high candela rating to pinpoint a suspect or a distant dark corner.

Choosing the Right Light for You

If you need even light distribution in an area, you should primarily consider lumens. On the other hand, if you require a focused, directional light source, then candela becomes a more critical factor. The ideal situation would be to combine both lighting styles into a single product. These types of lights are referred to as dual-light products. A spotlight features a tight,

focused beam for distant illumination (candela) and a soft flood light to illuminate the area directly around you (lumens).

The Original Dual Light

Nightstick, a provider of professional LED products for industrial environments, firefighting, and law enforcement worldwide, created the original dual-light product in 2007. Often imitated but never equaled, Nightstick dual light products are the gold standard by which all others are measured. Visit Nightstick.com to find the perfect dual light for your job site.



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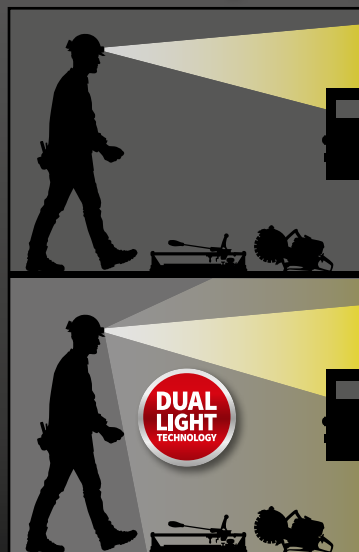
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Over 600 national and international suppliers come together to exhibit at Farnborough International Exhibition and Conference Centre this February for Southern Manufacturing and Electronics (inc AutoAero) 2024. Meet the power behind UK manufacturing industry and see live demonstrations and new product launches of machine tools & tooling, electronics, factory & process automation, packaging & handling, labelling & marking, 3D print technology, test & measurement, materials, composites & adhesives, rapid prototyping, ICT, drives & controls, plastics & polymers and laboratory equipment.

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Southern Manufacturing & Electronics: Industrial Innovation At Its Best

Merging the worlds of mechanical engineering and electronics every year at the Farnborough International Exhibition Centre, Southern Manufacturing & Electronics is the UK's most comprehensive annual industrial exhibition. Next year's event, which will take place from 6th to 8th February, will play a pivotal role as a pan-European showcase for cutting-edge technology.

From early beginnings in 1997, the show has progressed to become a truly international event and next year there will be more participation by overseas firms than ever before. As stand space was filling up so rapidly with several months to go, the organisers expanded the footprint to accommodate the demand.

Visitors will find many hundreds of stands packed with the latest machine tools, tooling, workholding equipment, automation, inspection and testing solutions, PCB design, business and engineering software, and myriad electromechanical, electrical, electronic, hydraulic and pneumatic components and equipment, plus subcontract manufacturing offerings of all types.

Other no less essential products and services on offer will encompass oil and coolant supply, workshop equipment, dust and fume extraction, humidity control, workplace storage systems, bespoke case and foam manufacture, plastic packaging, injection moulding, hand tools, adhesives, waste removal and recycling, training, freight services and both financial and legal consultancy. The show is likewise a great destination for researching production and planning aids. The incredibly diverse array of exhibitors allows attendees to tackle a multitude of sourcing issues in one visit.

In a world grappling with challenges such as skills shortage, supply chain disruptions, soaring energy costs and higher taxation, the exhibition will spotlight mitigating themes such as automation, Industry 4.0, reshoring of production, green energy, and power-saving machinery. Additive manufacturing, a technology evolving towards mainstream production, will also feature prominently.

As a complement to the exhibition, an extensive technical seminar programme will run over the three days. Presentations will cover a wide array of topics, one of which will feature Tim Harrison from The CE Marking Association, who will give a brief introduction to product compliance and the six

steps necessary to fulfil the requirements. The talk will look at some of the more common legislation as well as various nuances and pitfalls before focusing on Brexit and its impact on UK and European manufacturers, importers and distributors.

Anna Lothsson, who is sustainability director of NCAB, a leading producer of printed circuit boards, will review the steps the group is taking to create a more sustainable industry, while maintaining growth and profitability. She will explain how the company continuously works to optimise resource usage, minimise waste and decrease pollution. Her message to all manufacturers, particularly those in the electronics sector, is that adopting sustainable practices can lead to cost savings, increased efficiency and improved brand reputation, making it an economically viable choice.

Recognised for independent UKAS-accredited EMC (electromagnetic compatibility) and electrical safety testing, as well as offering IP (ingress protection) testing for products, Kiwa Electrical Compliance's laboratory in Blackwood, South Wales has expanded its test services by uniting with RN Electronics. The company will be present to promote its merged and expanded offering, which means that EMC, radio and electrical safety testing can now be carried out under one roof, helping customers to meet the relevant EU directives and regulations for UKCA and CE marking.

Southern Manufacturing & Electronics 2024 will co-locate with AutoAero, a specialised theme within the exhibition dedicated to aerospace and automotive engineering. Free admission and parking make this event easily accessible to all and a complimentary bus service runs between Farnborough's railway stations and the showground. To stay updated on the event and access more information and tickets, visit

www.industrysouth.co.uk



The Work Trouser and Kneepad System To Fit Your Job

It's said that hard-working craftsmen and women put more pressure on their knees than many top athletes. That's why the risk of knee injuries is far higher among trade professionals and manual workers than other occupations.

One of the best ways to avoid knee problems is to wear Snickers Workwear Trousers with their innovative knee protection – KneeGuard™ - a world-leading, fully certified, trademarked system.

Snickers Workwear has 86 different types of Work trousers in multiple sizes to suit a host different trades and jobs on site - plus 8 different types of Kneepads. Together they deliver hundreds of Work Trouser and Kneepad combinations to effectively deal with different types of knee impacts; the amount of time working on knees; and individual needs for personal protection.

The unique design features of both the Work Trousers and Kneepads deliver flexibility when you walk, yet they close around your knees when you kneel down – to prevent your knees from sliding off the kneepad when moving around on the floor.

So, when you're seriously considering long-lasting knee protection, look for the Snickers Workwear KneeGuard™ system - tested and certified for performance, efficiency and protection to deliver comfort and wellbeing day in day out.

Getting more information on the Snickers Workwear clothing range is easy. You can call the Helpline on 01484 854788; check out www.snickersworkwear.co.uk and download a digital catalogue or email sales@hultaforsgroup.co.uk



Make Yourself Seen With Snickers Workwear

When worksite visibility decreases, accident risks increase. That's why you need properly certified, hard-working High-Vis clothing to make you easier to spot on site. Especially in dim, dark and variable light conditions in winter.

Snickers Workwear's extensive range of High-Vis working clothes suits a wide range of work environments from construction and engineering to handling and logistics; from professional trades to lighter manual work.

<https://www.snickersworkwear.com/list/product-guide/make-yourself-seen>

There's Jackets, Trousers, Shorts, Toolvests, Shirts and Fleece in the LITEWork, FLEXIWork AllroundWork and ProtecWork families - a host of different garments to satisfy the specific requirements of Classes 1, 2 and 3 protection levels.

All these 'outstanding' products are integral parts of every man and woman's PPE package. Combining Snickers Work-

wear's unrivalled hallmarks of functionality and comfort they also meet requirements of the EN20471 standard for high visibility warning clothes.

Getting more information on the Snickers Workwear range of High-Vis protective wear is easy. You call the Helpline on 01484 854788; check out www.snickersworkwear.co.uk; or you can email sales@hultaforsgroup.co.uk





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G-TEC Air Compressor Workstation Is Industry Game-Changer

Regardless of whether the business is an automotive workshop, a small-to-medium sized manufacturing company or indeed any type of operation that simply needs dry and clean compressed air, the new G-TEC Air Compressor from FPS provides a complete compressed air workstation with 'game-changing' capabilities. This 6-in-1 offer comprises a high-performance compressor, refrigerated dryer, dual filtration, 270/500 litre air receiver, oil-water separator and controller, making the G-TEC Air Compressor the

optimal and most convenient choice, for a whole host of applications.

Avoiding the need for many individual components that typically form part of a complex compressed air system, the G-TEC workstation features an integrated and modular design that saves space, reduces installation and improves efficiency. It delivers outstanding performance, producing a consistent supply of compressed air to power a wide range of pneumatic tools and machinery. With its high-efficiency motor and innovative design, this complete workstation also meets the growing demand for more sustainable and cost-effective compressed air solutions.



G-TEC workstations from FPS are available with a range of 7.5 to 22kW with pressure from 8 to 13 bar. The high-efficiency

cy screw compressors ensure optimal productivity and reliability. Importantly, the workstation comes with a 270 or 500 litre receiver and an integrated dryer and filters. The result? Clean, dry air for quality-assured pneumatic operations that lead to reduced downtime and maintenance costs and Indeed, reduced corrosion within pipes that also means fewer product rejects, and fewer costly air leaks, delivering yet more savings.

Another integral component of the G-TEC Air Compressor workstation is the condensate oil-water separator, supplied as standard by FPS to reduce environmental pollution. Furthermore, the intuitive built-in control panel makes using the G-TEC workstation easy to use for operators of all skill levels.

Among the business that can take advantage are automotive workshops. From tyre centres to body repair shops, the task of paint spraying and when using general garage equipment can benefit from the fixed and variable-speed models of G-TEC Air Compressor line-up. As a particular point of note, noise output is exceptionally low.

Further applications include pneumatic tools on production/assembly lines, woodworking tools such as sanders and staplers, and plasma/laser cutting. In all cases the outcome is the same: high-quality, professional compressed air delivery with economy and sustainability in mind. When operating variable-speed models, the remarkable energy-saving capabilities

of the G-TEC Air Compressor workstation render it an environmentally responsible choice that also reduces operational costs by as much as 30%.

With its fully integrated components, the compact design of the G-TEC Air Compressor makes it ideal for any customer where space is at a premium. This, when combined with straightforward installation and maintenance, allows the G-TEC workstation user the benefit of a hassle-free and highly cost-effective solution for businesses of all sizes.

"Users of the G-TEC Air Compressor can achieve the perfect balance between power and efficiency, ensuring that your compressed air needs are met without excessive energy wastage," states Moiz Palaci, Director of FPS Air Compressors. "At FPS, we are committed to providing innovative solutions that meet the evolving needs of customers. Our G-TEC Air Compressor is no exception, boasting a range of features that make it the ideal choice whenever low noise, energy efficiency, convenience and reliability are primary demands."

Purchase, lease and rental options are available.

For detailed information on the G-TEC range of air compressors please visit:

www.fps-compressors.co.uk/gtec.html





Hoist & Winch Designs And Manufactures Outdoor-Specification Tandem-Lifting Hoist For Environment Agency

Hoist & Winch Ltd recently supplied a special tandem-lifting hoist system as part of improvements to Environment Agency flood defence assets at Taplow Weir on the Jubilee Relief Channel, an 11.6 km asset that reduces flood risk to 3,200 properties by diverting water from the River Thames when flows are high. The tandem hoist units lift 7 m long galvanised steel stop logs each weighing 2000 kg. These stop logs provide a temporary barrier to the Jubilee Relief Channel so that workers can perform maintenance on the hydraulically controlled sluice gates.

Working for a large water industry engineering contractor, Hoist & Winch designed the remote-controlled tandem-lifting system to bespoke Environment Agency requirements. In terms of operating concept, the tandem lifting hoist system raises and lowers the stop logs in a level position so they locate correctly in the guide rails without any misalignment. At the heart of the system is a pair of Yale CPV 2500 kg swl (safe working load) single-fall, electric-powered chain hoists mounted in motor trolleys to provide fast and slow speed op-

eration.

A Danfoss/Ikusi wireless remote control handset offers individual control of either hoist raise/lower motion for initial levelling of the load hooks prior to lifting operations. The wireless remote also provides dual tandem hoist control for the precise level positioning of the stop-log load during lifting and lowering.

In the event of power loss or activation of a raise/lower limit switch, special software ensures that the system fails safe and the load does not lift unevenly. As a point of note, mechanical linking of the hoist units ensures correct load-hook separation at all times, while both hoist units also feature audible and visual operating alarms.

From an electrical perspective, Hoist & Winch Ltd provided rugged, heavy-duty plug and socket connectors for ease of maintenance and installation. In addition, the company utilised a fully enclosed (outdoor specification) power-feed system to provide safe maximum hoist-hook coverage across the entire gantry. PVC covers provided added protection for the IP55 hoist enclosure and electrical control panels from outdoor

weather conditions.

The criticality of the project and close proximity to water demanded closely monitored working practices, with very stringent planning of all activities and the provision of additional PPE, including life-preserver jackets. Site work was also subject to CDM regulations and required all site engineers to hold a valid CCNSG Safety Passport/CSCS competency certification.

Installation took place over a five-day period and involved a barge-mounted hydraulic crane. Testing of the complete system took place using a dynamic test load of 2.5t + 2.5t + 125% proof load. Additional repeated function tests involved the dynamic test load and actual stop-log load to prove system functionality and satisfy Environment Agency requirements. On completion, Hoist & Winch Ltd issued a LOLER Thorough Examination report and provided operator training for site personnel.

"The project to install the special tandem-lifting hoist system supports the Environment Agency's annual maintenance programme, which is essential to ensure its flood defence assets remain in good working order," says Andy Allen, Director of Hoist & Winch Ltd. "This type of tandem-lifting system would

prove ideal for many other applications, such as lifting steel blast doors used in explosive/hazardous environments or handling valuable or delicate long loads in the manufacturing sector. Essentially any task that demands very precise and failsafe level lifting."

Visit www.hoistandwinch.co.uk for further information and to view recent case studies.





Enerpac Cuts The Cord With Portable Cordless Bar Cutter

The Enerpac highly portable EBC-Series Cordless Bar Cutter quickly and easily slices through number 6 rebar or similar metal bar up to 20mm in diameter within seconds. The battery-powered cutter is designed for those who work in environments without access to on-site power. It is a convenient, and safe solution where external power is not available or where spark risk is a concern.

Portable, self-contained, and convenient

Whether cutting rebar for residential or commercial construction or cutting steel and aluminium bars (round, hexagonal, or square) in industrial applications, the cordless technology in the Enerpac Cordless Bar Cutter provides complete freedom of movement. Because it has self-contained power, no external power source is required. This makes the tool completely portable. Another convenient feature on the cutter is a 360-degree rotating head that allows the tool to either be positioned flat on a work surface, where metal bar can be fed through the blades from a comfortable working position, or rotated in any orientation needed to finish hard-to-reach cuts on the job site.

Another way Enerpac makes the tool convenient is by supplying it with two batteries and a charger so the operator can keep working when the first battery needs to be charged.

Precise Speed

The cutter offers a controlled, shear cut that is repeatable—unlike rotating cuts that tend to walk or slide on the bar—providing a uniform precise cut every time. Able to quickly cut

through up to #6 rebar in 5 seconds, the Enerpac EBC-Series Cordless Bar Cutter has highly durable blades for thousands of cuts, with up to 125 cuts on a single charge.

Minimises Safety Risks

The Enerpac Cordless Bar Cutter is designed to minimise safety risks. Gas saws, angle grinders and cut-off tools are among the most popular solutions for cutting metal bar today, however, these tools are also the leading causes of injuries to an operator's hand, arm or face. With the cordless bar cutter, the bar is held in place behind a protective guard, while a Trigger Guard helps prevent accidental activation. While the cutter's controlled cutting action ensures there are no shooting sparks, exploding blades or exposure to high RPM cut-off wheels.

To learn more about the Enerpac EBC-Series Cordless Bar Cutter, visit www.enerpac.com.





Sweet Contract For Hart

Hart Door Systems has clinched a large order from a major UK producer of Syrup for a varied range of Hart's industrial doors.

Doug Hart, Hart's chairman, says the order covers a wide range of Hart's doors from its Speedor Cleanroom and Speedor Mini doors to high-speed insulated roller shutters, pedestrian doors and fire shutters.

"This is a significant order across Hart's product range. Being able to deliver doors from one manufacturer, as well as our acknowledged installation and service delivery as a single source of supply, were key to our success," says Mr Hart.

"Our ability to advise the client throughout the time-sensitive project, which involved the client relocating to new premises, was also important in Hart's success."

Mr Hart adds: "This was the wide-ranging package from a single supplier, involving over 40 doors, finished in food-grade paint where appropriate. Brian Woodcock, our regional sales manager for the Midlands/South West, advised throughout.

"It is a clear message that Hart is a market leader which has the ability to take on complex projects and deliver a first-class service every time using doors from our comprehensive range such as Hart's Speedor high speed doors to roller shutters such as our Typhoon and Terror Screen range and more.

"In particular it was important that our Speedor Cleanroom was part of this project as it is designed to work in strictly controlled environments where high hygiene standards are required including protection against dust and dirt for example.

"The fast opening and closing feature helps to control airflow, reducing contaminants as a result," says Mr Hart.

www.hartdoors.com

sales: +44 (0)191 214 0404

BSIF Tests Unveil Vast Quantities Of Non-Compliant Safety Footwear On Uk Market

British Safety Industry Federation (BSIF) testing has revealed that a significant amount of safety footwear produced by non-members fails to perform as advertised.

Safety footwear is used to protect against hazards including slips, sharp objects, heavy loads, extreme temperatures, and chemicals. It is therefore an essential part of PPE and it is vital that it meets expectations.

However, BSIF tests show an alarming number of products on the UK market do not provide the protection they promise. Between December 2021 and December 2022, the BSIF assessed 42 items of safety footwear produced by non-Registered Safety Suppliers and found that just five passed its tests covering the regulatory requirements on both product performance claims and on the required supporting documentation.

BSIF CEO Alan Murray says: "Foot injuries are commonly suffered by workers and it is crucial that all safety footwear is correctly tested and certified to meet the required standards. A significant amount of footwear on the UK market currently is not fit for purpose – including many products that claim to be 'unbreakable' or 'indestructible' but failed key tests."

Safety regulations

In the UK, safety footwear used at work must comply with regulation (EU) 2016/425 and follow the relevant approval procedures to qualify for a UKCA or CE mark.

PPE designed to protect against anything more than minor injury is classified as Category II or III. These products must undergo a type-examination by an accredited testing body to ensure they meet their 'Essential Health and Safety Requirements' (EHSR). Category III products, which protect against permanent damage and death, additionally require ongoing, at least annual, independent quality assurance through either Module C2 Product Verification or Module D Product Quality Assurance.

Manufacturers are obliged to provide the Declaration of Conformity along with user instructions and technical documentation to sell and distribute Category II and III safety footwear in the UK, demonstrating that products meet all the necessary regulations and safety requirements.

RSSS tests

The BSIF offers membership of its Registered Safety Supplier Scheme to manufacturers that commit to producing PPE that is fully compliant with all relevant standards and regulations and is appropriately UKCA or CE marked.

The BSIF monitors Registered Suppliers to check they are only selling certified safety products that perform to claims made and meet all responsibilities of Regulation (EU) 2016/425.

Of the 108 tests the BSIF carried out on RSSS members' footwear between December 2021 and December 2022, 90% met all requirements on product claims and documentation. RSSS members whose products failed to meet the test criteria were required to rectify issues immediately to remain part of the scheme.

Alan Murray adds: "PPE used at work must carry a UKCA or CE mark that shows the product meets the minimum legal requirement for its design as well as basic requirements for health and safety. Sadly, non-compliant and, on occasions, even counterfeit products are on the rise. We advise anyone responsible for buying and specifying safety footwear to look for the RSSS shield to help keep their staff safe and healthy in the workplace."

The BSIF encourages all those charged with specifying PPE to:

- 1) CHECK your supplier is BSIF-registered. BSIF-audited suppliers are compliant, competent and trustworthy. Don't settle for less.
- 2) SELECT appropriate, certified and compliant products. Registered Safety Suppliers can support the product selection process through their competence, capability and knowledge.
- 3) PROTECT your workforce and your business. Registered Safety Suppliers go above and beyond, helping to keep your people safe and helping your business to thrive.

A full list of registered suppliers is available to view at www.bsif.co.uk/rsss/



The Importance Of Door Maintenance

The fact that Hart Door Systems has built a reputation for quality and longevity of its wide range of industrial doors, the importance of door maintenance should not be understated says Keith Fisher, Hart's National Operations Manager.

Servicing industrial doors not only improves their reliability and operational functionality but servicing is also a requirement under Health, Safety and Welfare Regulations which protect people who come into contact with the doors. Indeed failure to maintain industrial doors could put the user in breach of Government legislation incurring liability in the case of an incident involving an industrial door which is non-compliant.

As essential support for our clients Hart has comprehensive Service & Maintenance assistance as a specialist department which delivers a range of repair and scheduled maintenance options for its customers to further extend the life of their doors.

Given the very wide variety of industrial classifications we supply doors and shutters to, the emphasis has to be on designing servicing and maintenance packages which are tailored to match the specific needs of our clients' businesses and the arising usage patterns of the various doors/shutters.

A preventative Servicing and Maintenance Agreement ensures Hart's servicing is carried out correctly and at the precise frequency thus complying with Regulations. Typically during a Hart servicing visit all mechanical and electrical elements are checked for missing parts, general wear and tear and Compliance issues.

Mechanical checks include inspecting parts such as drive chain tension, alignment and lubrication, bearing wear and tear, motor oil levels and fabric tension and electrical checks include limit settings, cable connections and safety devices.

Hart also has a legal responsibility to ensure doors are left in safe working order after servicing. Again the issues are wide ranging such as measuring the closing forces of automatic doors where safe contact is the main strategy to prevent hazards.

The closing force of a door ensures correct force limitation under EN 12978 which prevents injury and crushing. Testing should always be carried out with an annually calibrated instrument according to DIN 18650, EN 12453 or EN 12445.

On completion of a Hart service visit, a paperless electronic copy of the engineer's report will be issued which may include additional recommendations necessary to ensure the doors are safe and compliant to relevant legislation due to changing 'shop floor' circumstances.

The sophistication of door systems such as Hart's Speedor range or its Typhoon shutter range has changed significantly over the years to cater for changing needs by its customers across the globe and indeed by changing climate. To ensure hard working doors in busy industrial environments continue to make a significant daily contribution to efficiency and safety, planned maintenance is essential.

www.hartdoors.com



Smart-Ex® 03 – The New Intrinsically Safe 5g Smartphone From Pepperl+Fuchs For Future-Oriented Digitalization Of Hazardous Areas





Pepperl+Fuchs presents the intrinsically safe Smart-Ex® 03, a new and future-proof 5G- and Wi-Fi 6- enabled smartphone that was developed entirely in-house in Europe.

The 6-inch device combines all the expertise and know-how of Pepperl+Fuchs subsidiaries ECOM Instruments as a pioneer in intrinsically safe mobile devices and Aava Mobile as an expert in industrial tablets and wireless technologies.

The smartphone with the cutting-edge Android™ 13 operating system complies with the latest technical standards such as 5G, Wi-Fi 6 and eSIM and is therefore ideally equipped for flexible worldwide use in public and private networks of mobile network providers or companies. Thanks to fast and secure transmission of large amounts of data, users benefit from state-of-the-art functions for communication and collaboration such as remote support, video conferencing or push-to-talk.

The Smart-Ex® 03 is predestined for a wide range of applications such as communication, digital workflows and work order management, operational safety, scanning, asset management, predictive maintenance, augmented reality applications or IoT integration. Employees along the entire value chain in the process industry, the hydrogen industry, the energy industry or battery production thus benefit from end-to-end digital processes right into hazardous areas.

Thanks to the technical standard 5G, the Smart-Ex® 03 provides outstanding connectivity. The technology enables fail-safe transmission of high data rates of up to 10 Gbit per second with a latency of less than 5 milliseconds.

www.pepperl-fuchs.com



PRODUCT CERTIFICATION

ExVeritas offer highly accredited and internationally accepted product certification including UKCA Ex, ATEX, IECEx and North American Listing with award winning 'customer service' levels. Our unique 'CMS' system gives customer 24/7/365 access to their quotes, certification project status, and issued certificates. Whilst we specialise in explosion safety, we also have in house EMC and Electrical Safety testing to offer turnkey global approvals.



TRAINING AND COMPEX CERTIFICATION

ExVeritas are the leading CompEx provider with international practical training centres around the world. We have more experienced lecturers and more benefits than any other Ex training provider, including free software tools and pre-and post e-learning. Our unique speciality courses include 'advance' level Ex Inspector and 'Advanced Intrinsic Safety Circuit Design'. Only a company with ExVeritas depth of experience can deliver courses at this level.



The Explosive Atmosphere Safety Specialist

The ExVeritas Group provides Product Certification, Management System Certification, CompEx Certification and Site Safety Services. We are a UK Government Appointed Body for UKCA 'Ex', an ATEX Notified Body and an IECEx Certification Body and Test Laboratory

Our Product and System Certification is internationally recognised for global markets, and we can parallel issue UKCA, ATEX, IECEx and UKAS ISO9001 Certifications to save our clients time and money. For sites we offer safety consultancy on explosion safety including equipment risk assessments and Ex inspection. We also qualify people with CompEx certification as well as specialist and bespoke training.

ExVeritas is a multi-award-winning company including the 'Queen's Award', the highest honour that can be bestowed on a UK company. We have a proven track record of delivering world class certification, consultancy and training.

With Certification Bodies in the UK, Mainland Europe and North America and training facilities in the UK, Malta, Italy, Denmark and Ireland, we can offer a global service and a cost effective and efficient service.

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+45 7734 4638

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Garland, TX 75042
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MANAGEMENT SYSTEMS CERTIFICATION

ExVeritas are one of only a handful of companies in the world that can offer a time and cost saving combined audit. We can certify UKAS (ILAC) ISO9001 and other QMS systems, UKCA QAN, ATEX QAN and IECEx QAR audit in one visit. In addition, we can combine other audits such as INMETRO, FUS (for North America) and even IECEx Service Facility Certification for further cost savings. We have redefined the 'one stop shop' for QMS Certification with the customer in mind.



SITE SAFETY

ExVeritas conduct electrical and non-electrical 'Ex' Inspections. We also offer explosion risk assessments, fitness for purpose assessments and even 'on site' UKCA, Notified Body or IECEx Certification. All of this makes us uniquely positioned to deliver full compliant explosion safety solutions, including our unique online and tablet based 'iEx Inspection & Management' solution.



www.exveritas.com
info@exveritas.com

Is Your 'Ex Competence' Verifiable And Correct For Your Industry?

CompEx Certification is an internationally recognised 'qualification' for people working in or needing awareness of explosive atmospheres and is a UKAS accredited certification scheme. It is by far the most highly recognised industry qualification and mandatory for many sites.

CompEx certification is referred to as an example of a suitable competence qualification by the UK HSE for DSEAR in their DSEAR Guide*.

As CompEx are monitoring the work environment for areas where new or additional 'site specific' training or linked training may be required, new courses have been developed for specific industry sectors or engineering groups.

Ex09-10 CompEx Inspection & Installation for Water Utilities

The new CompEx Ex09-Ex10 'Water Utilities Qualification' has been recently re developed by CompEx with an industry wide working group. Uniquely this course covers 'gas and dust' in a compact 1-week course (with supplied e-learning prior to attendance). Exercises and examples in this course cover the unique nature of water utilities.

MTEEx01-MTEEx04 Installation & Inspection for Maritime Vessels

This qualification (MTEEx01 – MTEEx04) has been developed for technicians and engineers working on vessels that use gas or low-flashpoint fuels such as LNG. Based on requirements set out in the standards IEC 60079:14, IEC 60079:17, IEC 60092-502 and the IGF Code, this course is ideal for experienced technicians and engineers with relevant qualifications of any merchant or commercial vessels including cruise lines, bulk carriers, general cargo, container, and tankers that are powered with gas or low-flashpoint fuels such as LNG.

Functional Safety Foundation (FSF) Course

The Functional Safety Foundation (FSF) course introduces the

concept of Functional Safety (FS) and its relationship to the safe operation of equipment. Functional Safety is an integral part of achieving safe operation in the use of control systems. This theory only course is suitable for both technical and non-technical personnel who require a basic understanding of Functional Safety. Based on IEC 61511, this course provides grounding knowledge of Functional Safety terminology, concepts, and standards to facilitate understanding.

*A brief guide to the Dangerous Substances and Explosive Atmospheres Regulations leaflet INDG370(rev1), published 01/13

ExVeritas continue to offer the full Range of CompEx Courses at our multiple centers globally, in addition we have developed new and updated specialist courses covering diverse subjects from advanced intrinsically safe design to non-electrical risk assessment.

Links to the new CompEx Courses:

[Explosion Safety Specialist - Ex Veritas | Ex 09-10 CompEx inspection & Installation for Water Utilities](#)

[Explosion Safety Specialist - Ex Veritas | MTEEx01-MTEEx04 Installation & Inspection for Maritime Vessels](#)

[Explosion Safety Specialist - Ex Veritas | Functional safety](#)

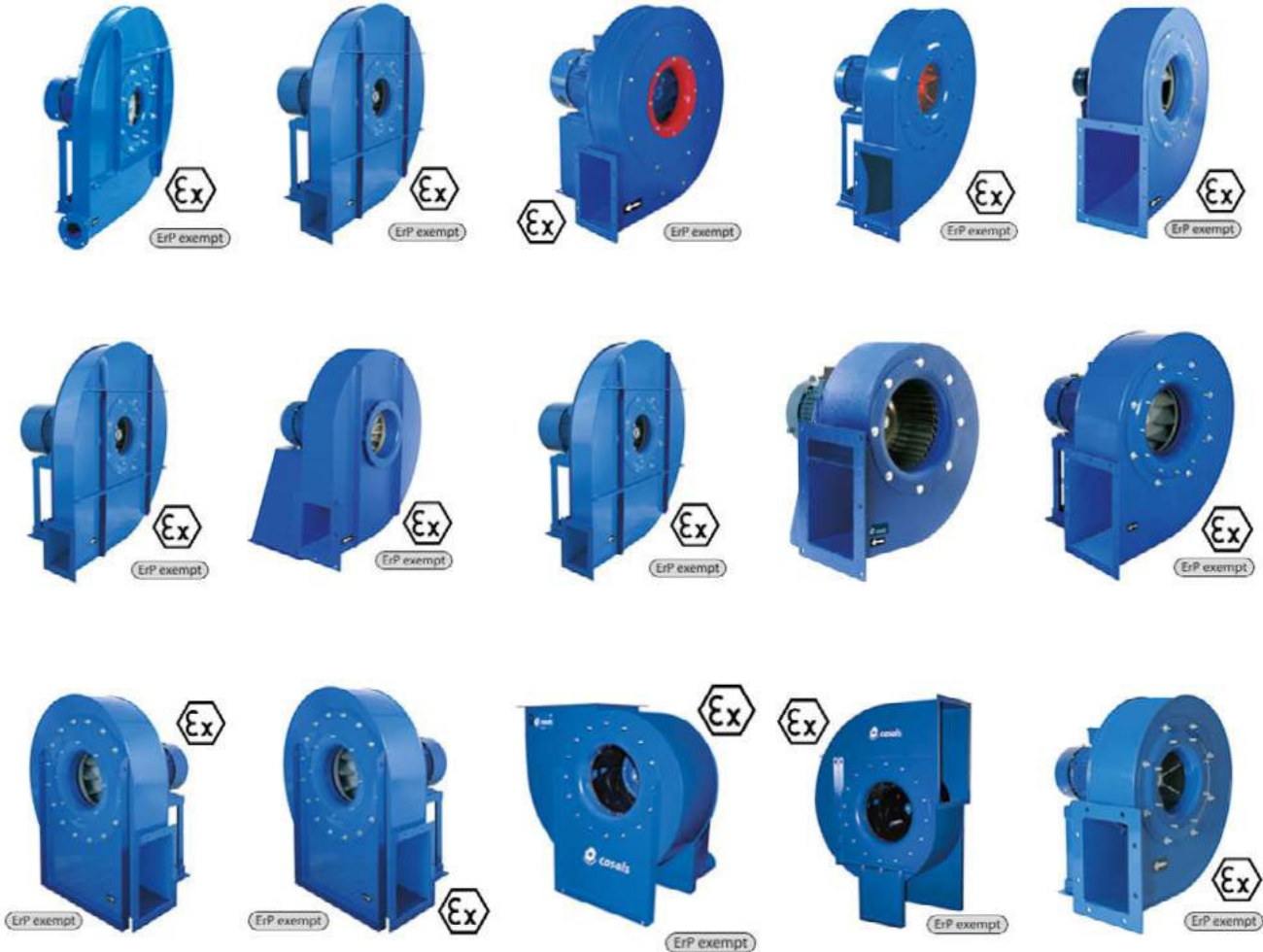
Foundation Course

Please see our full [2024 training schedule](#) for all course dates or more on ExVeritas [Training here.](#)





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The Ultimate Guide To Fan Selection In Fume Extraction Systems

With laboratory set up, operational maintenance and the intricacies of daily running, ensuring worker safety, regulatory compliance, and operational efficiency in labs is paramount.

Containment of chemical substances is one of the key activities in laboratories and process systems, and at the core of these systems, when maintaining the required pressure and airflow to extract fumes effectively, the responsibility rests with the industrial fan. This makes correct fan selection one of the most important system specifications. Enter our comprehensive specifier white paper: "The Ultimate Guide to Fan Selection in Fume Extraction Systems." ~~

Free to download from the Axair Fans website by scanning the QR code shown, this comprehensive resource, written by the experts in fume fans and air movement for chemical applications, is your roadmap to mastering the process of fan selection in complicated fume extraction systems, ensuring a healthier, safer, and more productive workspace.

Navigating the array of fan options can be overwhelming, especially when faced with the challenging task of managing hazardous fumes and airborne contaminants. That's where our guide comes in. With over 30 years of fan selection expertise, we've condensed the complexities of fan selection into an accessible and easy to understand document, that equips you with the knowledge you need to make informed decisions. Whether from supplier choice, to understanding the questions you're asked to ensure system compliance, understanding airflow requirements and system compatibility to deciphering the nuances of corrosion resistance and material durability, offering a practical toolkit to guide you through the selection process.

Where static discharge can be a concern in certain environments such as chemical laboratories, we'll explore the role of carbon loaded ATEX fans that effectively dissipate accumulated static discharge and gain a deeper understanding of

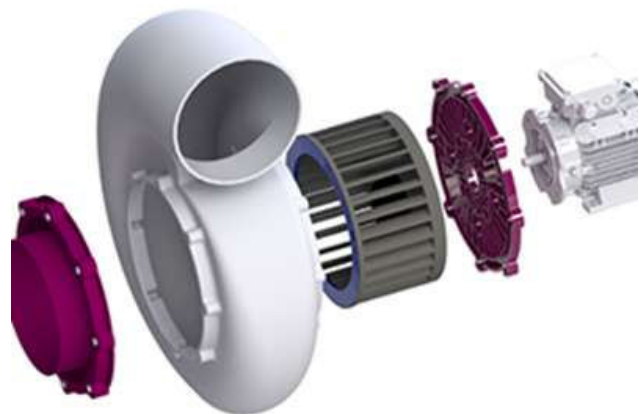
the relationship between fan specifications, ductwork design, and effective fume extraction. We'll explain the importance of EN14986 known as "The design of fans working in potentially explosive atmospheres" and how products must be constructed in compliance with directives to ensure fan components do not act as a source of ignition.

By the time you've gone through the pages in the guide, you'll be in a stronger position to write specifications to pass to future stakeholders, to talk to suppliers confidently or to troubleshoot poor system performance, armed with the information you need for fast and efficient decisions.

Who are Axair Fans?

Axair Fans are industrial air movement and fan integration specialists established in 1985 with a singular goal – to help to build better systems, systems that make our customers more successful. Working with specifiers, consultants, OEM's and contractors at all stages of the specification and buying process in a wide range of chemical applications including laboratory, containment, process, environmental and industrial sectors.

Visit <https://www.axair-fans.co.uk/industrial-applications-industrial-fans/the-ultimate-guide-to-specifier-fan-selection-in-fume-extraction-systems/> to download your free copy now.

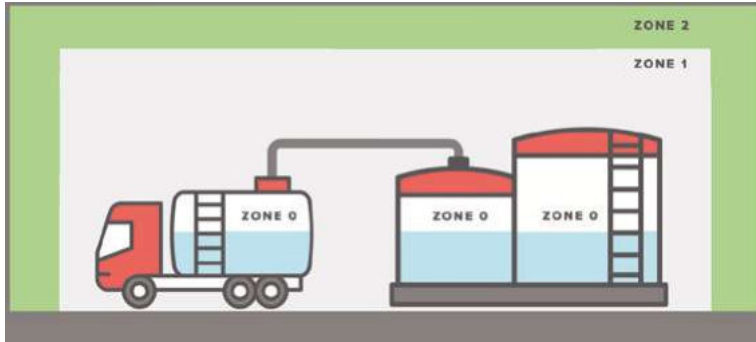




Test Products International Inc.

Condition Monitoring Solutions

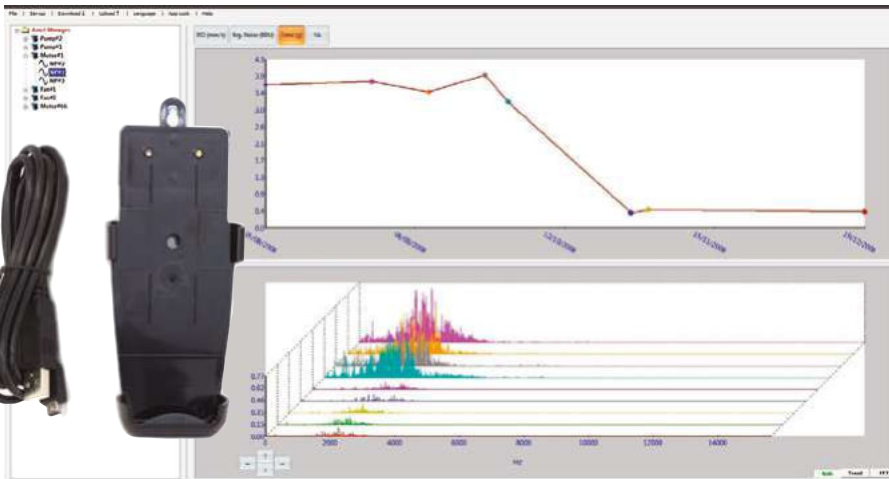
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See the Problem before it becomes the Problem

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ATEX – Should You Be Worried?

If you are even asking yourself the question “should I be worried about explosive atmospheres (ATEX)” then the answer is most probably “yes”. The Dangerous Substances and Explosive Atmospheres Regulations (DSEAR) require employers to control the risks to safety from fire, explosions and substances corrosive to metals. This entails compliance with BS EN 1127 (Explosive atmospheres - explosion prevention and protection), which in turn requires that any electrical equipment used is intrinsically safe and complies with BS EN IEC 60079.

It is generally understood that equipment for use in more obvious hazardous locations such as flour mills, coal mines, petrochemical plants and fuel transfer facilities, needs to be certified “intrinsically safe”. In other words, incapable of igniting an explosive atmosphere. However, hazardous locations also include water treatment plants, tunnels and underground passageways or any location where a build-up of naturally occurring flammable material (such as methane or dust) could occur.

Most people are familiar with the definitions of ATEX ‘Zones’ and if not, a quick web search will bring them up. Put simply, Zone 0 means an explosive atmosphere is very likely and Zone 2 means it is unlikely, with Zone 1 being the “grey area” in between. It is easy enough to identify from its markings whether a particular piece of equipment is suitable for a particular Zone, e.g. Ex ia for Zone 0, Ex ib for Zone 1 and Ex ic for Zone 2. However, the onus is very much on the plant operator to ensure which parts of their plant are in which Zones.

As if the issue of Zones wasn’t difficult enough, there is also the consideration of which gases are likely to be encountered. For example, equipment marked as Group IIB must not be used in

Gas Group	Typical gases
IIA	acetone, ammonia, benzene, butane, ethanol, gasoline, methane, naphtha, propane and similar gases
IIB	Group IIA plus ether, ethylene, acetaldehyde, cyclopropane and similar gases
IIC	Group IIB plus hydrogen and acetylene

Zones with hydrogen or acetylene likely to be present. Those gases would require at least Group IIC certification. Then there is also consideration of the equipment’s temperature classification, which specifies the maximum surface temperature that could arise due to a fault when operating within the specified ambient temperature range. For example, equipment coded T2 (>300C) could potentially get hot enough to ignite gasoline! However, a coding of T4 (>135C) is generally considered acceptable, being safe for all gases apart from Carbon Disulfide, which requires T6 (>85C).

Test Products International (TPI) believes it has greatly simplified things however, with the triple certification of the TPI 9080Ex Smart Vibration Analyser. The TPI 9080Ex is IECEx/ATEX certified for Zone 1 and North American approved for Class 1, Zone 1 and is hence certified for use in hazardous locations, with ANY gas types, ANYWHERE in the world. The TPI 9080Ex offers on-meter analysis for detection of machine faults such as unbalance, misalignment, looseness and bearing wear. With full colour OLED display and Bluetooth communications, the TPI 9080Ex features colour coded alarms and zoomable on-screen vibration frequency plots with cursor readout. It can store lists (routes) of up to 1000 machines, each with up to 10 measurement points, with full waveform and frequency spectrum (FFT) capture.

The included free-to-use VibTrend PC-based trending and reporting software features high-end benefits such as automatic email notification of alarms and report generation to implement a full CBM strategy. Routes and readings can easily be transferred to/from the TPI 9080Ex via Bluetooth using a smart phone or tablet running the free TPI Cloud Bridge App. This allows service personnel to be sent routes and return readings, no matter where they are in the world.

In-line with TPI’s philosophy of being the value leader, the TPI 9080Ex has a list price of only £3,500.

For more information please contact TPI Europe’s head office on +44 1293 530196 or take a look on the website at www.tpieurope.com or email sales@tpieurope.com



Two More Custom Motion Systems Provide Energy Saving And Environmental Improvements For Ireland's Historic Lighthouses

Some four years ago, McLennan designed and supplied a novel custom motion system to drive the historic 5,000 kg rotating Fresnel lens lantern on the unmanned Tory Island lighthouse – located nine miles north west off the coast of County Donegal. The project, now successfully completed for the Commissioners for Irish Lights, was part of a trial to improve and lower energy costs and reduce the carbon footprint across the entire network of lighthouses that help protect shipping and mariners navigating the Irish coast and islands.

McLennan's motion system was a part of extensive engineering upgrade work that replaced the Tory Island lighthouse's decades old lantern rotation mechanics but maintained the technological heritage of the original Fresnel lens that dates over 100 years. Now, as Irish Lights continues work to improve the energy efficiency and environmental footprint of all of its heritage lighthouses, McLennan, in a partnership with the Co. Kildare based automation specialist Amon Electronics Ltd, has completed similar engineering upgrades to two more lighthouses on Rathlin island which, incidentally, is famed for its puffin population. This is a unique 'upside down' lighthouse with the lantern at the bottom as the position of the beam improves visibility in an area that is prone to sea fog. McLennan, prides itself on providing a "motion partnership" service to its customers.



More than system integration, this often involves technical consultancy and development at a pre-project phase to enable feasibility studies, evaluate appropriate technologies and investigate ballpark costs. For the remotely located and non-mains powered Tory Island project, McLennan was involved at a very early stage with the Commissioners of Irish Lights engineers to develop a cost effective solution. The specified requirements included battery powered, dual-redundant, servo gearmotors and automation controls to drive the six-metre-high lantern optics via a three-metre diameter geared slewing ring. Throughout the project McLennan passed its expertise to the project's main contractors, Amon Electronics, in a new motion partnership. For the Rathlin East and West lighthouses, McLennan supplied similar motion systems to the original at Tory Island.

Interestingly, the West lighthouse has a unique 'upside down' configuration as well as a distinctive, red-tinted lantern to enable its use in an area that is exceptionally prone to sea fog. Similar in size and scale to the Tory Island lantern, environmental improvements for the Rathlin lighthouses meant replacing high energy 1000W lamps with 70W LEDs whilst maintaining the 1/4 original heritage Fresnel lenses. Whilst the Tory Island lighthouse had no mains electrical power and required the installation of solar PV and battery power and low voltage DC operation for the drives, Rathlin Island has mainland connected power.

Although this made the motion system requirements somewhat less stringent, Rathlin's environmental upgrade entailed that backup diesel generators were removed and replaced with batteries. Consequently, this called for a similar high efficiency battery powered drive system in the event that power from the mainland might fail. Although the Rathlin lighthouses have new ball-race bearing systems that replaced out-dated mercury bath bearings as well as upgraded slewing rings for improved efficiency, the huge load inertia of the lantern optics and its acceleration and continuous rotation speed provided a formidable challenge for the gearmotor specifications.

As a solution, that had proven efficient and reliable for the Tory Island upgrade, McLennan specified a 24/48V DC powered brushless, integrated 400 W servo drive from its distribution partner JVL Industri Elektronik A/S. The packaged solution included encoder feedback, RS485 communications and a programmable motion controller. With its integral power supply, this very compact decentralised solution both reduced wiring and suited the limited installation space in the lighthouse tower. To ensure the torque and speed required to drive the lantern and to mitigate the very large moment of inertia presented by the slewing gear arrangement, McLennan specified two inline-connected planetary gear units to provide a nominal output speed of 14 rpm. The combined gear ratios' torque magnification factor and reflected inertia reduction was more than sufficient to comfortably drive the lantern optics at its desired speed of 60 to 300 seconds per rotation. The short-term motor current and torque load during acceleration of the lantern and the much lower continuous current at running

speed proved well inside the power requirements specified for prolonged use from the possible backup battery supply scenario. As part of the redundancy back-up requirements, each gearmotor included a free-wheeling clutch integrated into its output stage. With one drive powered at any time, the second unpowered drive could idle.

The McLennan supplied control cabinet included a programmed ARM microcontroller that took care of functions such as motor performance and acceleration timing, battery condition and related I/O processes, as well as the management of the slewing ring's gear lubrication delivery system. The microcontroller also managed the motion systems' redundancy through the detection of any failure of the primary motor drive - then energising the secondary drive. The cabinet included visual indicators for critical functions. A connected telemetry system, supplied separately, relays information from the control panel to the mainland. McLennan developed the control panel for the Tory Island project and included a C++ diagnostic and commissioning front-end which was passed to Amon Electronics and is used by Irish Lights for maintenance. Several of these are without mains power and will consequently require the Tory Island self-sufficient electrical model.

The Rathlin lighthouses were originally commissioned in 1856 and 1919 respectively, both retain their historic first order Fresnel lenses and with the removal of mercury material and diesel generators, have much improved the safety and reduced the environmental impact of these important facilities for several generations to come. Other modification improvements under consideration include replacing the stand-alone

RS485 programmed intelligent drives with Ethernet interfaced alternatives so that real-time information can be easily relayed for preventative maintenance, improved safety and other enhanced control possibilities.

For more information on the historic lighthouses run by The Commissioners of Irish Lights, visit <http://www.irishlights.ie/>. For further information on McLennan's broad range of stepper and servo based motion and mechatronics components and systems solutions, call +44 (0) 1252 531444, email sales@mcclennan.co.uk or visit www.mcclennan.co.uk.




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i.safe MOBILE Announces 5g Android And Windows Tablet For Zone 1/21 With Charging Option For Hazardous Areas

I.safe MOBILE, innovation and world market leader for explosion-proof mobile devices and solutions, will be presenting its latest tablet developments to the trade public at the SPS trade fair in Nuremberg from 14 to 16 November 2023: In addition to the Android-based IS940.1, the company has also developed a Windows tablet IS945.1 as a debut.

The first 5G tablet for Zone 1/21, together with the 5G smartphone IS540.1, is the ideal addition to the equipment programme for knowledge workers in the field of predictive maintenance management in the process industry. With two alternative operating systems (Android and Windows), the user has a tablet for data communication in the Zone 1/21 hazardous area that can be ideally integrated into the existing system landscape and infrastructure with 4G/5G campus networks or WIFI 6.

The two energy-efficient tablet versions are equipped with the powerful QCM6490 chipset from Qualcomm® Technologies, Inc. optimised for IIoT, a clear 10.1-inch full HD display and a 16-pin ISM interface for secure connection of approved accessories. The world's first charging option for devices within the hazardous area offers the user a wide range of deployment options. Despite its robust design, the tablet is very light and easy to handle, supports Wi-Fi 6, Bluetooth 5.2, NFC and has customisable buttons. The feature package is rounded off by a powerful, replaceable battery, a main and front camera.

The 5G standard offers great potential in hazardous industrial sectors such as the chemical, pharmaceutical, petroleum processing and process industries: it enables the secure integration and consolidation of complex workflows and the networking of employees, machines and processes. Maintenance tasks, remote monitoring and the evaluation of process data in industrial environments require fast data transmission and processing.

In the 5G network, these can be transmitted many times faster than was previously possible in 4G networks. The i.safe MO-

BILE 5G product portfolio fits perfectly into the digital processes of the production structure within the 5G campus networks and has been developed for remote assistance, augmented reality, remote training and mobile machine data visualisation in explosion hazardous Zone 1/21.

The high available bandwidth in the 5G network enables data transmission with the lowest latency, which is particularly helpful for remote maintenance tasks or audits.

A world first, which i.safe MOBILE is presenting for the first time at the SPS trade fair, is the charging option for tablets in hazardous areas. For example, a connection to the Ethernet network can be realised via a special interface. In the automation sector, the tablet is charged in the Ex-safe docking station directly within Zone 1/21 but can also be used as an operating station for process control systems or for MES (Manufacturing Execution Systems).

This provides the user with almost unlimited application options for potentially explosive environments. You are welcome to drop by the i.safe MOBILE booth at SPS Nuremberg from 14-16 November for a spontaneous update! You will find us in Hall 5, booth 460.

www.isafe-mobile.com





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Stop Unnecessary Downtime With Non-Invasive Signalling Systems

Throughout the chemical sector, processes operating at high temperatures and with highly corrosive process media are common. Traditional signalling devices were not always compatible with such conditions and therefore are often overlooked as an additional accessory to monitor the status of the rupture disc.

Developments in technology mean even companies in this sector can now use rupture disc signalling systems, helping not only improve productivity and safety but also supporting with environmental concerns. German manufacturer, REMBE, is the European leader in the manufacturing of pressure relief devices and explosion safety systems and their product range encompasses some of the most robust rupture discs and signalling solutions available to add significant operational value within the chemical industry. Here REMBE discuss how its intelligent signalling solutions will keep you informed about the status of your entire plant while not being affected by the harsh operating conditions.

For processes operating with potentially harmful media the ability to shut down the process quickly and safely mean the risk of leakage is eradicated. Complying with explosive atmospheres and intrinsic safety industry standards, the signalling devices are designed to provide rapid notification of rupture disc activation, helping ensure safe management of the process while minimising downtime. REMBE's signalling devices can easily be integrated with customers control

systems to provide visual or acoustic notification of disc burst or to shut down the plant where required.

With non-invasive signalling devices, which make it impossible for the process medium to escape, processes with critical pressures and demanding media can also be reliably monitored. The following text explains the non-invasive monitoring unit NIMU in more detail.

Stop unnecessary downtime

For customers for whom compatibility with harsh operating conditions is of paramount concern the NIMU (Non-invasive monitoring unit) is a reusable rupture disc signalling system designed for rapid notification of rupture disc activation even in the harshest chemical environments. The REMBE NIMU sensor is not in contact with the process meaning it is not affected by challenging process conditions or corrosive media. The intrinsically safe NIMU is installed into a tapping within the outlet of the rupture disc holder, completely isolated from the process so it does not create any leak paths and is not damaged following disc activation - critical for chemical customers where leak paths cannot be tolerated.

With the traditional membrane type signalling devices, false alarms were unfortunately common place, as the harsh operating conditions could cause the device to activate even if the disc itself had not opened. This false signalling would cause unnecessary and costly process downtime. Unlike these traditional devices, the NIMU is not negatively affected by the process.

Additionally, membrane detection systems are single use, meaning additional replacement costs. With the NIMU this additional cost is eradicated – the NIMU enhances overall dependability of rupture disc installations while reducing long-term expenditure. Not only is the signalling device fully reusable following disc functioning it is also reusable after routine maintenance checks. Easy to inspect during such maintenance routines, its closed circuit design allows it to be



Fig. 1: Signalling device NIMU (Non-Invasive Monitoring Unit)

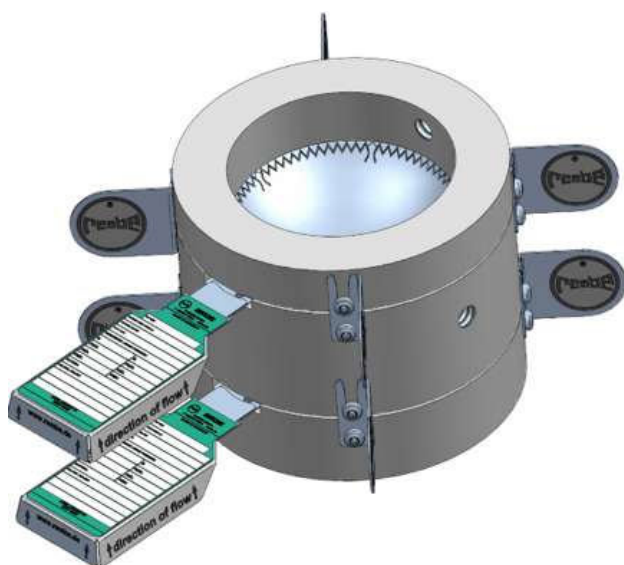


Fig. 2: Double Disc Assembly

refitted into the holder by the same operator inspecting the disc, simplifying and quickening the maintenance process, a must to meet the demanding productivity requirements within the chemical processing sector.

When used in combination with the REMBE IQ Safety Cockpit the operator can be instructed in the event of a system disruption and can implement the relevant emergency management protocols. The affected employees can be individually informed of a process shutdown and co-ordinated response to identify the cause and get the plant back up and running as quickly as possible.

Reliable Monitoring of Rupture Discs protecting FPSO processes

Rupture discs installed on a gas compressor module are designed to protect the tubes on a heat exchanger from rupturing due to overpressure. Rupture discs are selected due to their response time in milliseconds. As output is directly correlated to the production from the compressor module it is critical that a rupture disc with good life cycling capability is installed, otherwise as the operating pressures increase the rupture disc will be pushed to its operating limits and fatigue causing frequent failure and unnecessary loss of production through downtime.

The vent lines of several heat exchangers and other equipment are typically connected the flare system with a common manifold to save space on deck. This leads to the fact that there

is variable back pressure on the Rupture disc protecting a heat exchanger. This situation requires a double disc assembly. The first Rupture disc is designed is to protect the heat exchanger shell against excessive overpressure in case of tube rupture.

The second disc is typically a forward acting disc designed to resist the back pressure and set at differential pressure the required relieving pressure of the first disc less the amount of maximum back pressure.

Conventional signalling devices which are invasive are not suitable for such a harsh environment since they would be wetted by the medium on the downstream of the second rupture disc. For customers for whom compatibility with harsh operating conditions is of paramount concern the NIMU (Non-invasive monitoring unit) is a reusable rupture disc signalling system designed for rapid notification of rupture disc activation even in the harshest chemical and corrosive environments. The REMBE NIMU sensor is not in contact with the process meaning it is not affected by challenging process conditions or corrosive media.

Engineers designed a version of NIMU for such double disc assemblies and a special design for forward acting rupture discs to provide a reliable and long life signalling device for such demanding applications of the Offshore industry. This way in addition to the first disc, the second disc's condition could be continuously monitored improving the safety and reliability of the processes on FPSOs.

www.rembe.de

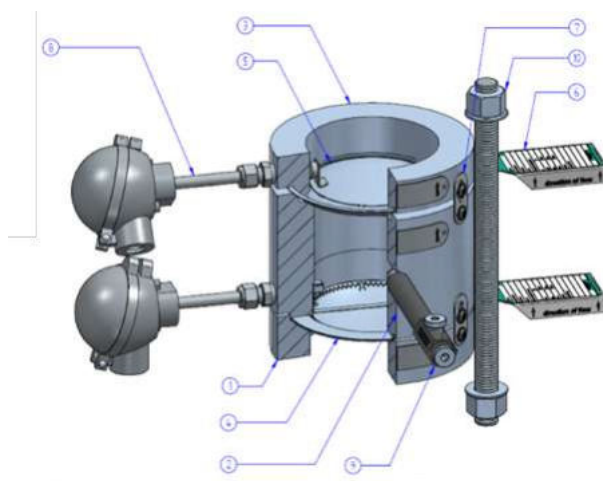
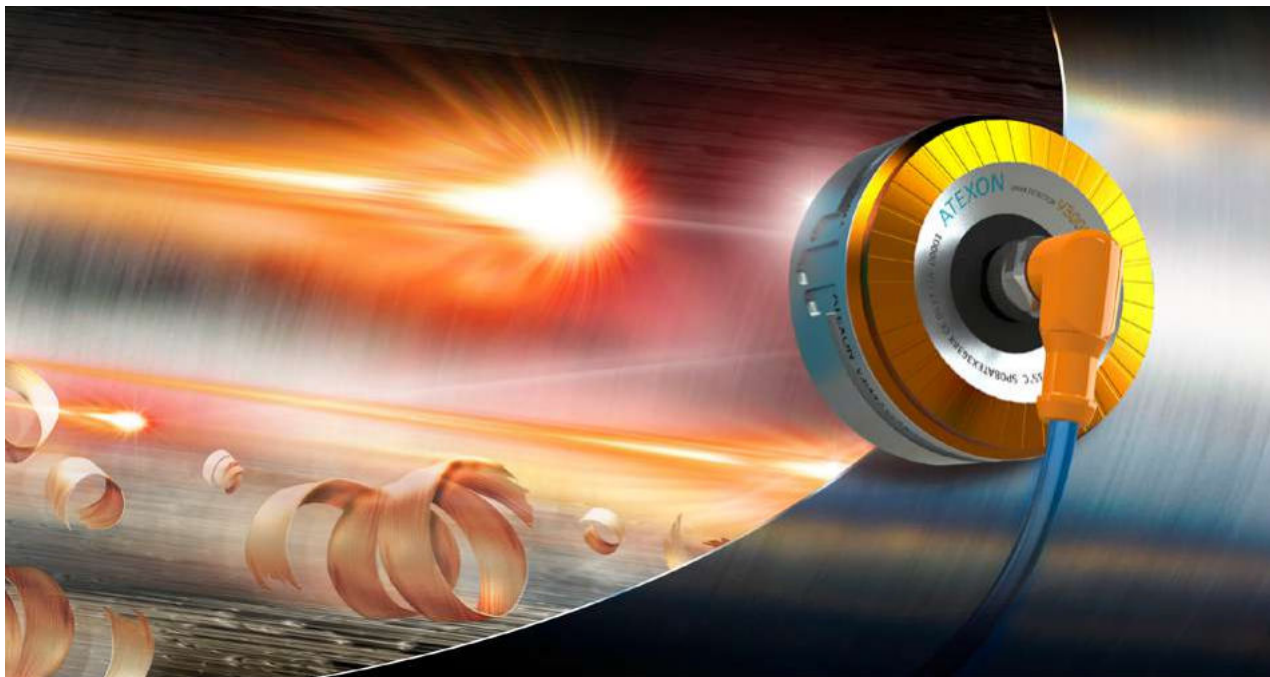


Fig. 3: Double Disc Assembly with signalling device NIMU



Atexon® Spark Detection And Extinguishing System By Iep Technologies Receives Fm Global Approval

The "next generation" Atexon Spark Detection and Extinguishing System by IEP Technologies has recently received third party approval by Factory Mutual (FM), meeting the detailed requirements of the latest version of FM 3265:2020. *

Spark Detection and Extinguishing Systems are widely used to protect and mitigate against fires and explosions in many industrial facilities, by continually monitoring for ignition sources (e.g. sparks, embers, hot particles and overheated fan components) within pneumatic process lines, and activating rapidly when required to prevent the potentially serious safety and financial consequences for the plant, the process, and any people working in the vicinity of the operation.

The National Fire Protection Association (NFPA) specifies that Spark Detection and Extinguishing Systems are subjected to third party testing and certification before being put into operation. By selecting an Atexon System with FM Approval, users can be reassured that all the required testing and examination has already been conducted by a globally established, nationally recognized testing laboratory.

A key component in the Atexon System is the innovative SD300-EX series Spark Detector, which ensures reliable detection of ignition sources in the visible or infra-red light wavelengths, even in the presence of dense material flows. The SD300-EX also features a 180-degree wide field of view, ensur-

ing no blind spots, potentially resulting in a reduction in the quantity of detectors required. For certain applications, they can be mounted without the need for welding, providing more installation cost and time efficiencies. These detectors feature corrosion resistant stainless steel (AISI 316L) housings.

Alongside gaining the globally recognized FM Approval, the Atexon System also recently underwent an overall design upgrade, providing users with even more application, operational and installation benefits. To learn more about Atexon Spark Detection and Extinguishing Systems, as well as the specialized range of Industrial Explosion Protection products and services offered by IEP Technologies, or to find your local sales, service and support center, visit

www.ieptechnologies.com or contact +1 855-793-8407.



Teledyne FLIR Cameras Help Save Lives In Stockholm Fire

Firefighting is an extremely dangerous and demanding profession, both physically and mentally. However, help is at hand: Teledyne FLIR designed its K-series of professional yet affordable thermal imaging cameras to take the strain, assisting firefighters in navigating through smoky conditions while searching for hot spots and measuring temperature from a distance.

The team at Solna Fire Station in Stockholm, Sweden, is a case in point, where the use of a FLIR K-series camera recently helped one of the team's smoke divers save four lives in a city centre fire. Storstockholms brandförsvär (Greater Stockholm's fire service), covers 10 municipalities in the city, including Solna, located just north of the centre. When a recent large fire began downtown, Solna's fire crew responded to the call.

"We sent in two smoke divers, both with FLIR K-series cameras," explains Tomas Bellander, a firefighter and instructor at Solna Fire Station with 22 years of experience. "One smoke diver spotted an elevator with its doors slightly open. His instinct drew him towards the elevator and, upon approach, his FLIR thermal camera showed what looked like an arm in the doorway. It turned out there were four people in that elevator, all of whom were saved by our smoke diver and his FLIR camera." Like any fire station, Solna has a range of conventional firefighting tools at its disposal, but relies on FLIR thermal imaging cameras to locate fires and pinpoint anyone trapped or in need of assistance.

However, while the main application for FLIR cameras at Solna Fire Station is smoke diving, the crew also uses its cameras as part of other rescue activities, such as locating people on train tracks or next to water. "It's a lot easier than using our own eyes and a flashlight," says firefighter Simon Zettergren. "We can quickly see if there are any temperature shifts to de-

tect human presence." Zettergren says Solna Fire Station takes advantage of FLIR K55 high-performance thermal cameras, retaining two in each vehicle. Charging takes place inside the truck.

"We typically deploy teams of two smoke divers: one with a hose and the other with a FLIR K55," he explains. FLIR K55 cameras allow Solna Fire Station to attack fires with better strategy, manoeuvre through smoke more easily and save lives. They display crisp thermal images on a bright LCD, helping Solna's fire crew to navigate better and expedite critical decisions. 1/2 "A lot of thoughts go through your head when there's a real fire," says Bellander. "You have to execute your strategy while simultaneously receiving commands from the lieutenant and making real-time judgements about situational awareness with limited visibility. The stress factor is high, so you must call upon your equipment and training. If you can do that, the outcome will likely be positive."

https://www.youtube.com/watch?v=uMnFfjZoJuA&ab_channel=TeledyneFLI



Making Packaging That Doesn't Cost The Earth

Globally, companies are seeking opportunities to reduce waste and the carbon footprint of their products. This has increased demand for environmentally responsible packaging, and the manufacturing company Futamura has become the world's largest producer of sustainable cellulose packaging films, including their leading NatureFlex™ range.

The production of sustainable films requires precise monitoring and control of process conditions. Highly accurate temperature and humidity measurement is therefore essential, particularly during the film drying process and when finished products are stored.

Futamura UK uses Vaisala measurement equipment across their site, including Vaisala HUMICAP® humidity and temperature transmitters HMT360 in their coating towers inside their conditioners. The coating towers contain solvents which are flammable, so the products used in these areas must be certified for the Ex environment. The Vaisala HMT360 transmitters, now superseded by the ATEX-certified HMT370EX, are intrinsically safe, making them ideal for use in hazardous areas such as these.

Vaisala measurement instruments can also be found on Futamura UK's casting machines, installed in the dryer ducting, measuring humidity and temperature. The Vaisala humidity and temperature meter Series HMT330 is designed to provide highly accurate measurements in demanding industrial applications. These transmitters control a valve which manages the amount of steam that goes into the dryers, allowing the humidity to be maintained at the drying set-point needed for each type of film. Moisture content is a significant factor in the properties of the final film, so accurate control is important to ensure product quality and minimise waste. The HMT330 is an older model, so, seeking to future-proof their measurement instrumentation, Futamura contacted Vaisala for advice.

A member of Vaisala's technical sales team therefore visited Futamura's UK site in Wigton, Cumbria to demonstrate the

benefits of switching to Vaisala's Indigo platform, and to discuss the options with Electrical Engineering Chargehand, David Carr, and Technical Engineers David Mansergh and Chris Reid.

"We described the applications for the HMT330 series instruments and the Vaisala representative suggested we try the Indigo520 display with a relative humidity and temperature probe HMP5," explains David Carr. "We were more than happy with the suggestion. His vast product knowledge and expertise in engineering and process systems was a huge benefit in the decision-making process.

He also went through the calibration process and explained how to set up the equipment with our electrical engineers. Vaisala's service and support have been first class – they have gone above and beyond to help us."

The Indigo520 can connect with two separate probes simultaneously and has a simple, clear, intuitive touchscreen display. Futamura particularly appreciates the screen size and easy-to-read graphs, as well as the ability to swap out probes for calibration. It has also been advantageous that the new HMP5 probes work mechanically in the same way as the previous devices, with which they were already very familiar.

The key benefit of using Vaisala's measurement instruments in Futamura's manufacturing process is that they enable accurate control of the production process, which ensures consistent product quality and reduces waste.

Summarising David Carr said: "Futamura has been using Vaisala measurement instruments for many years helping us ensure the quality of our sustainable packaging films, and we will continue to do so in the future. When you find products, and a company, that you can trust, it makes good business sense to continue the relationship. As a plant we like to standardise because it makes spares management and equipment replacement simpler. It's safe to say that Vaisala is our brand of choice because of product reliability and ease of installation and operation."



New Study Into New Renewable And Affordable Microgrid Using Biogas From Agriculture Farming

Bear Instruments, leading edge power electronics systems and instrumentation design and manufacturer, announced today (25 September) it is part of a consortium to deliver an affordable, reliable and clean energy microgrid for Vietnamese agriculture farms.

Bear Instruments are delivering the prototype microgrid to include the gas turbine, solar array, 2nd life EV battery for storage and a grid tied connection. This includes modelling of batteries, evaluating state of health and state of charge along with development of the micro grid hardware itself.

Dr. James Green, Managing Director said, "Our consortium is focused on optimising the microgrid control, building, testing and delivering power conversion for lab-testing, developing energy conversion models and helping to identify an efficient secondary battery market for energy storage."

The company is developing power electronic energy conversion (DC/DC converters, AC/DC rectifiers, and DC/AC inverters) for optimum microgrid performance.

Many existing AC-networked microgrids, in this application space, with solar PV and battery storage are high cost with low efficiency. The payback period in the Vietnam PV power plant industry is 10 to 14 years. And secondary life batteries for energy storage are quite new in Vietnam and are still not mature in more developed countries.

Combining these factors with very expensive biogas treatment in Vietnam means development of a clean, affordable microgrid is of great importance to rural families, who are generally low income and lack the resources to pay the upfront costs.

The other key technical challenge is to develop a cost effective treatment process for the raw biogas, based on bentonite, a waste material which is readily available from local mines. This is expected to reduce this cost by 20%.

The innovations work for both islanded mode and on-grid application, particularly for communities with off-grid/unreliable power-systems. They also work for second life batteries as energy storage solutions.

This project is sustainable in producing low carbon energy but also using pollutants from other industries. Methane from

farming is also a much more reliable energy source than other solutions and has potential for wider application in other developing countries.

The consortium is led by Dr Khoa Dang Hoang at the University of Huddersfield. Along with Bear Instruments, the consortium includes Allgreen Energy, who have strong expertise in project management and building business models within the renewable energy sector; and Hochiminh City University, with its chemical process engineering lab focusing on bio-gas treatment.

The project is funded by Innovate UK and expects to deliver power efficiency of up to 5% and cost local communities 30% less to develop.

James Green, managing director of Bear Instruments, continued: "Generating renewable, reliable and affordable energy from waste is the holy grail of the sustainability and net zero movement. This is an important step in achieving that goal and it makes sense that the first beneficiaries are low income local communities.

"There are a number of electronics and processing hurdles to overcome and we are making great progress addressing these. The bears are really excited to play our role in making this a reality."

Dr Khoa Dang Hoang, of the University of Huddersfield said: "The project will provide a cost-effective and reliable microgrid system for local agriculture farms as well as solving the environmental issue causing farm waste. The solution can scale up for any farm sizing."

George Huang of Allgreenenergy added: "Building quality power converters and inverters for a clean microgrid is a significant milestone to achieve environmentally friendly power generation. This innovative project has huge potential globally and the key is electronics. We want current and future generations to have equal access to renewable energy while living on a thriving and sustainable planet, and this will help achieve that."

For more information, please visit <https://bearinstruments.co.uk/>, <https://www.hud.ac.uk/> or <https://www.allgreenenergy.org/>.

Clean-Up Without Trip Hazards

A

clean work space is essential for health and safety, and the best tool for general cleaning up dust and loose product in the workplace is an Industrial Vacuum Cleaner. However, the vast

majority of machines need to be plugged in to a power outlet, which necessitates appropriately positioned power outlets, and a trailing cable which itself presents a hazard.

Quirepace have introduced the IV62 eGX into the range of BVC Industrial Vacuum Cleaners to eliminate this risk. This is a powerful battery powered unit which, as standard, is provided with a 3-stage filtration dry product tank consisting of a paper sack collection, microfibre main filter and 3rd stage HEPA filter. This configuration is suitable for most dry-product collection applications. The unit may be configured as both M-Class and H-Class rated units.

The unique Honda eGX electric engine is designed to replace petrol engines in the 2.5hp class and provides more than adequate power to run the BVC YP3 exhauster unit at full design speed. This new machine is designated BVC IV62 eGX.

The Honda eGX variable speed drive allows the operator to set the run-speed for the optimum performance for the job in hand. At full power the IV62 eGX has a runtime of 30 minutes, and at slower speed this can be extended to over 2 hours.

The eGX fast charger provides 80% charge in 1 hour and 100% charge in 1.5 hours, making continuous running possible with spare batteries.

The BVC IV62 eGX makes it possible to clean up the industrial workplace without the hassle and hazard of trailing cables and availability of appropriate power outlets. Instantly available power combined with a large collection volume means that it has never been easier to maintain the cleanliness of the workplace

Quirepace Ltd

www.quirepace.co.uk

www.bvc.co.uk



Airbench WB Wet Filtered Downdraught Bench

The wet filtered AirBench WB range comprises 3 downdraught benches in which the primary filtration mechanism is a water spray. An internal system of baffles induces a spray action using air movement to agitate water in the base of the unit. WB models are suitable for combustible dusts and are built for production level industrial use.

- Designed for extraction of titanium and other combustible dusts.
- Heavy Duty 2mm steel fan/filter housing
- Fully welded and powder coated
- Stainless steel main body for corrosion protection
- 3mm stainless steel surface, perforated and powder coated
- 150kg surface loading; up to 500kg surface loading on request
- Secondary mist filter for final water removal.

www.airbench.com



Airbench Ltd Celebrates 30 Years!

AirBench are celebrating 30 years in business, as of September 2023. From small beginnings as a dust and fume extraction contractor named WorkPoint Environments, through a name change, various premises changes, and steady growth in team numbers, AirBench Ltd remain the company to talk to for downdraught extraction.

AirBench remains a family owned and run business, although the team has grown significantly and the range has broadened to include cross-draught systems and booths, 2 ranges of coolant mist filters, and air cleaning systems.

The extended dealer network across the EU, Asia, and Australia means AirBench products can be found in a huge range of

manufacturing facilities worldwide – from mines in Australia's Northern Territory, through power generation companies in Hong Kong, to various small manufacturers within a few miles of the AirBench main production facility in Colchester.

As always, we continue to offer on-site demonstrations of our products across the UK including assessments of your dust or fume extraction issues. Contact us if you have a problem we can help you solve.

www.airbench.com





APS Ltd & Lev Testing And Servicing, Is Thrilled To Announce The Launch Of Its Brand-New Website.

APS Ltd UK (APS), a leading provider of solutions for dust and fume extraction, pneumatic conveying, and LEV testing and servicing, is thrilled to announce the launch of its brand-new website.

The newly revamped website underscores APS Ltd UK's commitment to delivering exceptional value to its clients and partners. It boasts a sleek, modern design that aligns with the company's forward-thinking approach and showcases its extensive range of offerings.

Visitors can easily navigate the site to explore APS Ltd UK's diverse portfolio, gain insights into its industry expertise, and stay up to date with the latest news and developments.

Key features of the new APS Ltd UK website include a user-friendly interface, comprehensive product and service information, a resourceful blog and news section, and enhanced

accessibility.

Commenting on the launch, Sherrie Ogden, Director at APS Ltd UK, stated, "Our new website is a testament to our commitment to excellence and innovation in our industry. We believe it will provide our clients and partners with a valuable resource to explore our offerings and connect with us more effectively."

For five decades, APS Ltd UK has remained at the forefront of safety expertise, consistently delivering high-quality solutions and services to clients across the UK. The launch of this new website marks a significant milestone in the company's ongoing journey to enhance customer engagement and satisfaction.

To explore the new APS Ltd UK website and learn more about the company's offerings, please visit <https://apsukltd.co.uk/>.



New Peli™ Microcases – The Ultimate Solution For Safeguarding Valuables

Peli Products (UK) launch three new personal utility cases as part of the Micro Case Series™. The redesigned models (M40, M50, and M60) are waterproof and dustproof and produced to protect small valuable items.

The new Peli Microcases boast an IP67 rating, giving protection against heavy rain, temporary water immersion, dust, sand or dirt. They offer excellent protection for all types of valuables and small devices when working in wet or hostile environments and for water sports and outdoor activities.

Manufactured using the legendary Peli guaranteed crushproof polymer, the new Micro Cases have been designed with several improvements. They feature a dedicated watertight O-ring gasket seal and redesigned dual latches. The addition of a lock hasp allows a padlock to be fitted for greater security. The inner non-slip liner helps keep items in place and is removable for easy cleaning.

These new cases also offer more internal volume and like the previous range, they feature an automatic pressure equaliza-

tion valve to balance interior air pressure.

The M40, M50, and M60 cases are available in clear with a yellow or black inner bottom liner and black. They can be found here:

<https://pelipproducts.co.uk/collections/micro>.





World's First Explosion- Protected Camera For Zone/Division 2 Hazardous Areas Launched By Axis



axis Communications, a leader in network video, announces AXIS P1468-XLE Explosion-Protected Bullet Camera, the world's first explosion-protected camera specifically designed for Zone and Division 2 hazardous locations. The camera is designed for Zone 2, 22 and Class I/II/III Division 2 according to international standards (ATEX, IECEx, NEC).

AXIS P1468-XLE uses the 'Ex e' protection method, an explosion-protection approach referred to as 'increased safety' or 'non-incendive'. This method ensures that no arcs and sparks can appear, and that excessive temperatures cannot be reached, during normal operation of electrical equipment. As a result, electrical equipment using 'Ex e' protection cannot ignite gas or dust in the surrounding potentially combustible environment.

AXIS P1468-XLE is a robust, impact- and weather-resistant fixed camera which delivers excellent image quality in 4K resolution under any light conditions, through Lightfinder 2.0, Forensic WDR, and OptimizedIR. Compact and lightweight in design, the camera is as easy to install as a standard camera.

AXIS P1468-XLE has been designed in line with North American and European directives for equipment intended for use in potentially explosive atmospheres. By design, the camera is unable to provide sufficient energy to ignite gas or dust in the atmosphere to cause an explosion, therefore removing the need for any traditional explosion-protected enclosure.

The multitasking camera provides many benefits within health and safety applications and operational efficiency. Early detection of smoke and fire, ensuring that personal protective equipment (PPE) is being worn and used, and monitoring restricted areas bring significant health and safety benefits to organizations. In operational efficiency, the camera can be used for visual verification of various processes and as part of an advanced data-driven sensory network.

Integrated deep learning for advanced analytics

Built on ARTPEC-8, AXIS P1468-XLE includes a deep learning processing unit (DLPU) enabling advanced features and

powerful analytics that run on the edge. For instance, by connecting the camera to the process control system and continuously monitoring a process, you can fine-tune the process in real-time to maximize throughput. In addition, it is possible to extract and send metadata for further analysis, which can be used for trend monitoring and predictive maintenance. Built-in cybersecurity features help prevent unauthorized access and safeguard the system.

Specifically designed for Zone/Division 2 hazardous locations
In contrast to Zone/Division 1 hazardous locations – where the presence of an explosive atmosphere is likely and a regular occurrence – in Zone/Division 2 hazardous locations, an explosive atmosphere is far less likely, less frequent, and present for much shorter periods of time. It is still essential however, to eliminate the risk of equipment creating a spark that might create an explosion in these areas.

Explaining why the company has chosen to create a camera specifically designed for Zone/Division 2 hazardous locations, Jesper Olavi, Global Product Manager at Axis, said: "For customers who have wanted to use video surveillance in Zone/Division 2 hazardous locations, the only realistic solution so far has been to use explosion-protected cameras certified for Zone/Division 1 hazardous locations. But these heavy-duty enclosures are over-engineered and unnecessarily expensive for Zone 2/Division 2 hazardous locations. With the launch of AXIS P1468-XLE, customers will have the chance to bring high-quality video surveillance and advanced analytics into locations where they were previously rarely used due to the prohibitive cost.

"AXIS P1468-XLE highlights the benefits of Axis designing and manufacturing our own explosion-protected cameras. In designing every element of the camera, we can ensure the methods employed for explosion protection are based on an individual camera's requirements, rather than creating a 'generic' enclosure designed to fit many cameras. It's a process that leads to an optimal solution for specific environments and use cases."

For further information about Axis solutions please visit

www.axis.com

ABB Publishes New Report





ABB has launched a new report that considers carbon capture, hydrogen and electrochemistry as routes to decarbonizing primary steel production. It spotlights innovative new technology developments and approaches in Brazil, China, India, Sweden and the US – the countries that are leading the way towards fossil-free steel. It includes insights from leading steel manufacturers SSAB, Tata Steel and Aperam, as well as experts from the American Association for Iron and Steel Technology and ABB.

The new ABB report named 'What does the journey to fossil-free steel look like? How to achieve a sustainable future' discusses decarbonization challenges including cost, the complexity in transitioning to lower carbon technologies and access to hydrogen, clean electricity, high grade iron-ore and fossil-free carbon and lime.

Current steel production is carbon and energy intensive and classified as one of the six 'hard to abate' sectors. Globally, the steel industry is responsible for an estimated 8 percent of the world's energy demand and generates between 7 percent to 9 percent of CO₂ emissions – most of which are from burning fossil fuels, according to various sources including the recent International Energy Agency (IEA) Iron and Steel Technology Roadmap.

To meet the criteria set out in the United Nations Paris Agreement on climate change and limit the global temperature increase to below 1.5 °C compared with pre-industrial levels, the steel industry must achieve a target of net zero emissions by 2050. This will require radical transformation, especially in context of global steel demand which is projected to rise 30 percent by the same date.

The ABB report spotlights fossil-free steel innovation in five steel producing markets. These include:

- the Hydrogen Breakthrough Ironmaking Technology (HYBRIT) piloted in Sweden by steelmaker SSAB, state-owned iron ore miner LKAB, and state-owned energy company Vattenfall to make steel using green hydrogen and fossil-free electricity using the high grade iron ore from the LKAB mines instead of coking coals;
- the ResponsibleSteel™ industry association-backed Aperam, which has interests in stainless steel and agriculture, and the use of charcoal produced from its own 100,000 hectares of FSC®-certified forests in Brazil as a renewable substitute for coal-based coke in steelmaking to significantly reduce CO₂ and entirely eradicate the use of extractive coal;
- the HIsarna process by Tata Steel in India which uses a powdered form of the raw ore material instead of processed ores such as coke, sinter or pellets to make liquid pig iron and can reduce emissions by up to 20 percent compared with the traditional Blast Furnace-Basic Oxygen Furnace (BF-BOF) method.

"Digitalization is not only intrinsic to collaboration between entities but to optimizing the use of resources and energy management, and in providing the traceability required to keep organizations accountable to emissions targets," said Shiva Sander Tavallaey, Senior Principal Scientist at ABB Corporate Research Center.

The ABB report presents actions that steel producers can make now to reduce carbon in the short and medium term as well as steps to take with industry suppliers and partners to work together towards a fossil-free steel future.

"Regulatory, commercial, and social drivers are accelerating the journey to decarbonize steel," said Frederik Esterhuizen, Global Business Line Manager for Metals at ABB. "But to address the core challenges set out in ABB's report and phase out fossil fuels, the steel industry will need powerful, integrated solutions and must collaborate at every level of the global steel supply chain in order to succeed."

"A digital, autonomous and fossil-free steel industry is possible through partnership. ABB is taking an approach of partnership and collaboration to integrate innovative technology with ABB's existing portfolio for the steel industry. Initiatives from around the world show that the industry is committed to a sustainable future, with several promising developments in the works. Through innovation and partnership, a green steel future is an achievable reality."

To view the ABB report: 'What does the journey to fossil-free steel look like? How to achieve a sustainable future' visit <https://new.abb.com/metals/what-does-the-journey-to-fossil-free-steel-look-like>

ABB's Process Automation business automates, electrifies and digitalizes industrial operations that address a wide range of essential needs – from supplying energy, water and materials, to producing goods and transporting them to market. With its ~20,000 employees, leading technology and service expertise, ABB Process Automation helps customers in process, hybrid and maritime industries improve performance and safety of operations, enabling a more sustainable and resource-efficient future. go.abb.com/processautomation

ABB is a technology leader in electrification and automation, enabling a more sustainable and resource-efficient future. The company's solutions connect engineering know-how and software to optimize how things are manufactured, moved, powered and operated. Building on more than 140 years of excellence, ABB's ~105,000 employees are committed to driving innovations that accelerate industrial transformation.

www.abb.com



New PBT Offering Outstanding Adhesion With Widely Used Silicone Adhesive

E-mobility and the trend toward driving assistance and safety systems are leading to a sharp rise in demand in the automotive industry for thermoplastics for electronic equipment and modules. Typical applications include housings for radar sensors, control units and cameras. One common method of manufacturing these housings involves the bonding of individual, injection-molded parts such as covers, side panels, bases and connectors. Silicone adhesive systems are commonly used here because of their efficiency and performance.

The thermoplastic substrates often have to be adapted to suit these adhesives. One successful example of this is the new polyester Pocan® B3234HR S2 (PBT) from Envalior. This hydrolytically stabilized compound offers outstanding adhesion with a primer-free applied, thermally quick-hardening single-component silicone adhesive that is already widely used on the market. Running change in series production "Thanks to its outstanding bonding properties with this adhesive, our new compound has replaced a rival PBT product in the ongoing series production of electronics housings for driving stability systems."

These safety-relevant systems are used in the electric and internal combustion engine vehicles manufactured by a number of international automotive manufacturers, including from China," says Thomas Babl, who heads Envalior's application development and technical customer service team at its site in Hong Kong. The driving stability systems are produced by TE Connectivity Corporation.

The US technology company is one of the world's leading providers of connection and sensor solutions for the transportation sector as well as for a range of industrial, energy technology, medical technology and data communication applications. Investing in standard adhesion test systems Pocan® B3234HR S2 is based on Pocan® B3233HR. This PBT compound already offers excellent adhesion with numerous silicone adhesives and has proved itself over many years in the series production of in-vehicle electronic components such as connectors and parking brake housings. "To optimize the material, we invested in two standard test systems for pull-off adhesion tests. We also developed our own manual peel test.

Among other things, this allows us to quickly test the strength of adhesives and so instantly integrate our findings in ongoing development projects," says Babl. Outstanding rating in the SAE/USCAR long-term hydrolysis test The new Pocan® B3234HR S2 not only ensures high-strength adhesion with the

single component silicone adhesive but also offers outstanding hydrolysis resistance. In specimen tests based on the stringent long-term hydrolysis tests of the US Society of Automotive Engineers (SAE/USCAR-2 Rev. 7), it achieves "Class 4" – the second-best rating. This means that it has a similar level of hydrolytic stability to Pocan® B3233HR. "This ensures that the electronics housings for driving stability systems are resistant to hot and humid environments and can do their job without any issues," says Dr. Claudia Schmid-Dähling, who is among those responsible at Envalior for Pocan® product development. The new structural material also exhibits similar mechanical properties to the tried-and-tested product Pocan® B3233HR. Especially impressive are the high tensile strength and elongation at break, which lend the material a high degree of resistance to burst pressure. Schmid-Dähling: "These mechanical properties are important because tests aimed at determining whether the housing stays tight even under high-humidity conditions are performed at high pressures." Laser marking capability at high speeds and frequencies

The new PBT compound is colored black with "900867" from Envalior. One benefit of this highly versatile color system is that the housings can be laser-marked at high speeds and frequencies and with a high level of contrast. "Information such as parts designations, batch numbers and QR codes is easily legible even when the lettering is really small," says Schmid-Dähling. Another benefit of the color system in PBT is that it ensures good absorption of the frequencies usually used in laser transmission welding, which helps to ensure high weld strength in this joining process. Flame-retardant PBT with excellent silicone adhesion under development Envalior will be putting the new test equipment to intensive use in the future with the aim of developing further specially tailored, application- and customer-specific thermoplastics for silicone adhesives.

"We're working, for example, on hydrolysis-resistant PBT compounds with good laser marking capability that not only offer firm adhesion with silicone adhesives but are also highly flame-resistant.

They could potentially be used for housings located close to electric vehicle batteries," says Babl. Envalior is a new company formed as a result of the merger of two industry leaders, DSM Engineering Materials (DEM) and LANXESS High Performance Materials (HPM). It is one of the world's leading manufacturers of high-performance engineering plastics. For more information on the products and services provided by Envalior,

visit <https://envalior.com/products-services/>

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