

Hazardous Engineering Solutions



Incorporating Health & Safety

The International Magazine For
Hazardous Area Professionals

July/Aug 20 | Issue 54

Water jetting diploma raises bar for standards

Read More On Pages 4-5

6-13

Safety Lighting & News

18-23

News & Products

32-33

Dust Safety Science



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Flash 2 Explosion Suppression System

The latest version of the industry leading StuvEx Flash suppression system has many advanced features.



- Single and multipoint injection suppressors capable of handling 4 ducts from one suppression bottle.
- New Master Control Unit can handle up to 16 Zones.
- A range of explosion detectors for various applications.
- New Gas Generator - no pressure vessels used.
- Atex Certified.

Earthing Control

There are two Earthing Monitors within the StuvEx range for Gas and Dust applications.



Gas Version



- Competitively priced and easy to install.
- New stainless-steel housing for easy cleaning and maintenance.
- Redesigned fascia enables the operator to ensure the best possible connection.
- Failsafe operation – visual confirmation of correct earthing via green/red lights.
- Automatically recognises the object to be earthed.
- Atex Certified and compliant with IEC 60079-31-1 and NFOA77.

An extensive range of explosion protection equipment. From supply to full turn-key solutions

Explosion Isolation

Isolating an explosion is vital. There are five different explosion isolation devices in the StuvEx range.



- NOVEX valve. Designed for filter inlet ducts, though can be used elsewhere.
- **Can handle organic dusts and metal dusts ST-3 K_{st} max 440 bar. m/s**
- Ventex Valve. For installation to a filter air intake.
- Fast Shutting Gate Valve. The most efficient way to isolate an explosion.
- Diverter Valve. Used to divert a potential ignition source to a safe area.
- Fire Trap Valve. Protects 'Down-Stream' machinery in the event of a fire or explosion.

Explosion Venting

StuvEx supplies a range of explosion venting devices.



- StuvEx Explosion Vent. A 100% efficient vent for silos, bins, filters etc.
- StuvEx DQS. A maintenance free, flameless vent for installation to an internally located vessel.
- StuvEx Flameless Indoor Vent. Allows an explosion to safely occur inside a building.

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bar for standards

Read More On Pages 4-5

6-13 Safety Lighting & News

18-23 News & Products

32-33 Dust Safety Science



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Contents

In This Months Issue

Cover Story
Page: 4 & 5

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P:4-5 Front Cover Story

P:6-13 Safety Lighting & News

P:14-17 Products, Explosion Protection & ATEX

P:18-23 News & Products

P:24-26 Instrumentation & Temperature Management

P:27 News

P:28-29 News & Products

P:30-31 Lone Worker

P:32-33 Dust Safety Science

P:34 News & Products

P:35 Buyers Guide

Water jetting diploma raises bar for standards

Organisations that use high pressure water jetting within their production or maintenance process can now ensure their operatives demonstrate competence.



The Water Jetting Association (WJA) has launched a new Competent Water Jetting Diploma that gives employers and clients greater assurance that services are being delivered safely and effectively.

The WJA, celebrating its 40th anniversary in 2020, is the UK's trade association for the water jetting industry and the country's largest provider of water jetting training.

Water jetting is used in an increasing number of industrial processes for cleaning, surface



preparation, material cutting and hydrodemolition.

Water pressures can reach 2,700 bar or 40,000 pounds per square inch (psi). This makes implementing safe systems of work that protect operatives and other people is vitally important.

John Jones, Vice-President of the WJA and Chairman of its Training and Safety Committee, said: "The WJA's training courses provide a strong foundation for developing water jetting skills.

"Our new level 2 diploma builds on this by providing proof of competency in key attributes, knowledge and skills, through an assessment process that will last around a year, longer if necessary."

The WJA's Codes of Practice already require members to demonstrate competence. At least half the members of any water jetting team must be competent personnel.

The competent water jetting diploma, which maps



directly to an NVQ Level 2 Construction Skills qualification, enshrines this concept in the WJA's training and skills programme for the first time.

Operatives will first have to take and pass the WJA Safety Awareness course (one-day) plus the Surface Preparation practical module (one day) and one other practical module. All are accredited by City & Guilds.

They then enter a process of work-based assessment. This will include recording all water jetting activity in a workbook and multiple worksite visits by a WJA-accredited assessor.

Successful operatives receive a WJA competency card and must follow the WJA procedure of retaking the Safety Awareness course every three years to refresh knowledge and understanding.

John Jones said: "A competent water jetting operative is at least 50 per cent more productive than one who is not. That is money saved and more money made for his or her employer.

"Competent operatives also deliver better service, so customers are happier. Proof of competency also mitigates regulatory risks, whether financial or reputational."

The WJA has also introduced a Management and Leadership Course for those who have oversight responsibility for water jetting, for example commissioning water jetting services.

Accredited by City & Guilds, content includes legislation and regulation for water jetting, hazard awareness, risk management, water jetting methodologies and WJA Codes of Practice.

To pass, management delegates will have to complete an end-of-course test and submit a written assessment to the WJA-approved instructor within 30 days of attendance.

The WJA has also strengthened its advice on emergency first aid. It has issued new Water Jetting Injury Management Guidelines based on research commissioned from a team of leading NHS emergency physicians.

The research, published in the European Journal of Trauma and Emergency Surgery, found serious injuries are often overlooked because internal damage caused by water jets piercing skin is hidden from view.

The guidelines are supported by an algorithm that details best practice actions at each step of medical response to injury, from giving first aid to ongoing hospital care.



Dr Sancho Rodriguez-Villar, of Kings College Hospital, London, who led the research, said: "Without early and correct intervention, the outcome for those injured is often catastrophic, including death, loss of limbs and long-term disability. We strongly advise all parties involved to observe the WJA's updated guidelines."

WJA-approved training providers and instructors deliver water jetting courses in many countries across the world. The WJA also welcomes international members.

www.waterjetting.org.uk



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Key Benefits	Courses Offered
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Contact us for details of WJA-Approved Instructors in your area

✉ info@waterjetting.org.uk
☎ +44 (0) 208 320 1090
🌐 www.waterjetting.org.uk

Water Jetting Association – The Engine House, Veridion Way, Erith, Kent, DA18 4AL, UK



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Please refer to our website
for information about
our 5 year warranty.

www.glamox.com/gmo

Generations of Experience — Technology of Tomorrow

Glamox is the world market leader in the manufacture and supply of lighting solutions for the global marine and offshore markets. The company is involved in lighting studies, design and calculation for large offshore greenfield projects as well as offshore and onshore maintenance and modifications projects.

Export boost for Hart Doors

Hart Door Systems, the Newcastle-based specialist engineering company, has won multi-door orders for export to Russia, Hong Kong and Kuwait.

The contracts, which cover a range of Hart Doors' commercial doors, are welcomed by the company's managing director as "very welcome and a boost for the hard-working team".

"There is uncertainty in the air due to Corvid19 but despite that we have worked hard on all management aspects of the business to be inclusive and proactive," says Hart's managing director, Nick Hart. "The team spirit is tremendous. We are determined to take every opportunity available to us."

The contracts include Hart's high-speed Speedor

Storms and swing gates for Hitachi Zosen Inova, Moscow, which will be installed on a major Energy from Waste plant, and a large order for fire shutters for a Beumer contract at Kuwait Airport.

In addition Hart is supplying shutters for the Hong Kong Central Government Office as well as for the Hong Kong Jockey Club. "Together these contracts bring substantial work to Tyneside and there is more to come," adds Mr. Hart.

Hart is an experienced exporter with, for example, many of its products installed at nearly 40 international airports from Vladivostok and Taskent



to the Seychelles, the Falklands and Viracopos/Campinas International Airport, Campinas, São Paulo State, Brazil.

www.hartdoors.com

Evonik chemicals site in Belgium chooses Human Centric Lighting from Glamox for recently renovated control room

Evonik is a global market leader in specialty chemicals. The company's Oxeno site in Antwerp, Belgium is an onshore refinery that processes different C4 fractions.



These raw materials are brought in either through pipelines or ships and processed into a final product. The site works with hydrocarbons – organic compounds made up of only hydrogen and carbon. Chemicals are split and combined in reactors. In distillation columns, the difference in chemicals' boiling points are used to separate them. These chemicals are fed through pipelines into the distillation columns and heated.

Manufacturing Butadiene and MTBE

Evanescent evaporating chemicals rise inside the column, which is where they are separated from the product at the bottom of the distillation column. Generally, when it comes to hydrocarbons, the longer the carbon chain, the heavier the molecules and the higher the boiling point. By repeating this process in a subsequent column, more chemicals can be separated, and by adding different chemicals, new chemical bonds are created, giving rise to new products. The products manufactured at Oxeno include Butadiene and MTBE. Butadiene is used in synthetic rubber, primarily for the tyre industry, and has various uses in plastics and elastomers, which are plastics with a high elasticity such as synthetic rubber or silicones.

MTBE gives rise to a higher octane number and improved fuel combustion in petrol engines; this means MTBE helps to improve air quality. In the Oxeno control room, screens display vast quantities of data across five desks. The process operators are trained in chemistry and must have experience as external process operators before being able to work internally in the control room. Internal operators guide, control and manage the production process. Various alarm lists are shown on the screens, in red or yellow; these have to be checked and adjusted to ensure the production process runs smoothly and safely. External operators must be contacted as they carry out checks on the ground. Temperature, pressure and flows are constantly monitored.

Human Centric Lighting

The Oxeno control room was recently renovated. A Human Centric Lighting solution was installed to provide the best possible working environment. Throughout the day, the colour temperature of the lighting changes to give the internal operators a good rhythm and to keep them alert at the right times.

Rik Luyens, Sales Engineer at ATS Antwerpen and Dirk van Cauteren from Framaz, Glamox's Belgian

distributor for land-based projects, suggested the solution to Evonik. The company operates 24/7, with the staff rotating between three shifts. The C90 light fittings from Glamox are calibrated in a three-day cycle across 24 hours, with the colour temperature creating the appropriate atmosphere. Users can adjust the light intensity independently, but not colour temperature. The cycle will continue to be refined based on user feedback. Peter Neefs of Evonik says that users have responded positively to the lighting.

DALI monitoring

Jose Cordova Alvear of Framaz coordinated the scheduling and initial set up of the lighting installation. The building's automatic light fitting controls and E80 emergency lighting monitoring are managed through DALI. This allows issues to be read immediately and a fast, appropriate assessment of whether steps must be taken to ensure safe emergency exits will be available in case of an emergency.

The C90 light fitting from Glamox is a family of modular LED luminaires with fully illuminated surfaces with excellent design, flexibility and visual performance. With a high finish and large illuminated surface, the C90 offers premium light qualities with no visible luminaire frame in the ceiling. The perfect shaped frame around the optics is made in one piece without any joints and is only 12mm wide. This makes the frame invisible in the T-bar system.

The E80 from Glamox is a recessed LED exit sign luminaire. The E80 is recognised by the use of high quality material and components. Signs for both 20 and 30 metre distances are available. The E80 can be supplied as a manual, self-test unit or centrally controlled testing and monitoring. A centralised battery option is also available.

For more information on lighting solutions for the onshore energy sector, please visit: www.glamox.com/onshore

Eaton extends benefits of revolutionary Smart Universal Marshalling Solution to non-hazardous area applications

Power management company Eaton has introduced a new version of its revolutionary MTL SUM5 smart universal marshalling solution for use in non-hazardous area industrial applications.



Offering the same unique modular design as the original, the general purpose MTL SUM5 delivers lifetime cost savings for signal conditioning applications. Additionally, the new configuration module makes programming far easier and faster.

The MTL SUM5 combines the main marshalling functions of intrinsic safety (IS) isolation, signal conditioning, relay interfaces, surge protection and loop disconnect in a single cabinet design. Standardizing on one cabinet also simplifies procurement, inventory management and documentation significantly. With fewer cabinets to install, process managers can reduce costs associated with installation, commissioning, start-up and maintenance. MTL SUM5 therefore delivers the lowest lifetime costs and lowest installed cost while saving valuable space in a control room.

Go configure

With universal plug-in modules, the MTL SUM5 is simple to set up and simple to configure, offering users the ability to address IS and non-IS functions in a single system. Configuration via a PC is achieved using a single module: either the MTL4-DMA or MTL4-DMR Diagnostic Alarm and Configuration module. The MTL4-DMA offers connection for USB-Serial cable, 16 alarm indicators for each channel and two relay outputs to alarm terminals on the carrier. The relays provide a diagnostic alarm for module failures and a process alarm for Line Fault Detect (LFD) and process alarms. The MTL4-DMR offers all these features, plus 16 relay contact outputs for process alarms from each channel via a 34-way ribbon cable connector, allowing connection to an external termination board.

The configurable design of MTL SUM5 accommodates late changes. This reduces risk during project execution as modules can easily be reconfigured or added as necessary at any point during the build. Loop disconnect is integrated in every terminal, so loops can be easily isolated, which simplifies maintenance and keeps associated costs to a minimum. There are two options of field terminal assemblies (FTAs) - General Purpose FTAs for signal conditioning or pass-through installations and Intrinsically Safe (IS) FTAs for IS installations - which can easily be switched as the application requires. The surge protection module can simply be added as and when it is required on completion of the surge risk analysis, which is carried out during the detailed engineering stage. This enables plant managers to save upfront costs where surge requirements are not known.

MTL SUM5 reduces the number of marshalling components by 65% compared to a standard solution. One MTL SUM5 universal ADIO isolator module supports the functionality provided by 20 different MTL4600 single channel modules, while the configurable parameters enable support for an even wider range of applications. The marshalling solution provides comprehensive diagnostics, notifying the process managers when action is required. It also features LED indicators for power, function and status, which simplifies commissioning and troubleshooting. The MTL SUM5 modules are designed for both cabinet mounting in the control room, or field mounting. They are designed for ambient operating temperatures from -40 to +70°C and for mounting in a Zone 2 hazardous area, thus providing reliable operation in remote locations.

For further information visit:
eaton.com/sum5

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PERIOD!**






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Dual-Light Flashlight for Intrinsically Safe ATEX Zones

The Nightstick XPP-5422G is the definition of an intrinsically safe product. This ATEX safety certified Dual-Light Flashlight is not capable of releasing enough electrical or thermal energy under normal or abnormal circumstances to cause ignition, even in a Zone 0 environment.

Three components are necessary to create an explosion;

1. Flammable material – A gas, vapour, or mist.
2. Oxygen – Oxygen, regular breathable air is sufficient.
3. Ignition Source – Extreme heat or a spark.

In a flammable atmosphere environment, special precautions must be taken to prevent catastrophic explosions. All portable lighting must be specifically engineered to avoid a spark from occurring and igniting any flammable vapours or explosive mists. In some cases, these vapours and mists can be colourless and odourless, making them especially dangerous.

Commercial worksites have different hazardous areas classified at a specific level called a "Zone." All

equipment safety ratings must be carefully selected based on the most dangerous Zone it may encounter; therefore, it is critical to identify the Zone in which you will be working. Let's take a look at the specific characteristics of each Zone.

Zone 0

An area in which an explosive atmosphere is always present.

Zone 1

An area in which explosive atmospheres are likely to occur during regular operation. This may be due to leakage, scheduled maintenance, or emergency repairs.



Zone 2

An area in which an explosive atmosphere does not occur during normal operation, or for a short period of time only. This is usually the result of an accident or other unusual operating conditions.

The Nightstick XPP-5422G is the definition of an intrinsically safe product. This ATEX safety certified Dual-Light Flashlight is not capable of releasing enough electrical or thermal energy under normal or abnormal circumstances to cause ignition, even in a Zone 0 environment. The light is rated IP-67 water/dustproof and puts out 240 lumens with an impressive beam distance of 170 metres. Additionally, the torch includes both a flashlight and downward floodlight, which can be turned on separately or simultaneously.

www.nightstick.com

Tork Launches Safe At Work Resource Hub To Support Manufacturing Businesses And Essential Workers

Safe at Work toolkit offers manufacturers of essential goods and those re-starting operations as the lockdown eases, hand hygiene best practices and robust cleaning guidelines to protect the health of site workers and reduce operational disruptions



Tork has launched a new resource hub, Safe at Work, in response to the COVID-19 pandemic to help businesses and essential workers Stay safe to carry on™. Tork Safe at Work is a one-stop online resource for the most up to date hygiene information and recommendations for businesses. As the global leader in professional hygiene, Tork is offering insights and resources based on decades of experience, combined with the latest public health recommendations, to help businesses prevent the spread of pathogens and keep employees safe to carry on.

As a part of this effort, Tork has developed the Tork Safe at Work: COVID-19 Toolkit for Manufacturers

to help companies producing essential goods and those that are re-starting their operations in light of the easing of lockdown restrictions, ensure cleaning regimens and employee safety programs are aligned with recommendations from public health bodies, such as the World Health Organization. The Tork Safe at Work: COVID-19 Toolkit for Manufacturers provides companies with the tools and resources to ensure their sites remain safe and hygienic for workers during the pandemic and beyond.

"Manufacturing employees have been working tirelessly to ensure people have the supplies they need during these challenging times. Tork

developed the Safe at Work: COVID-19 Toolkit for Manufacturers to ensure these essential workers have the resources necessary to reinforce and augment their cleaning procedures for safe site operation," said Jenny Turner, Marketing Director—Industry, Essity Professional Hygiene. "With the easing of the lockdown restrictions and many manufacturers re-starting operations, it's essential that returning employees feel confident and safe at work. Site managers should rest assured that these expert recommendations will help keep their facility safe and hygienic now and into the future."

Recommendations from the Tork

Safe at Work: COVID-19 Toolkit for Manufacturers include:

- Proper hand hygiene protocol for site workers, including ways to improve adherence;
- Enhanced surface cleaning protocol to ensure that manufacturing workspaces stay hygienic; and
- Recommendations for reviewing sites' standard operating procedures to incorporate physical distancing measures, with alternative recommendations if implementing physical distancing measures is not possible.

To download the Tork Safe at Work: COVID-19 Toolkit for Manufacturers and to learn more about how Tork is supporting businesses during the COVID-19 pandemic, visit www.tork.co.uk/safeatwork.



Gamma

- Low profile LED floodlight for Zone 1 & 2 hazardous areas
- Stainless steel construction for extended life in harsh environments
- 5700K crisp white light
- 5 year complete system warranty







www.abtech.eu




Flexible Busbar Enclosure for Zone 1 Hazardous Areas

Abtech have launched a high current enclosure that can carry up to 3kA and certified for use in areas where potentially explosive gasses or dust are present.

The SX Busbar is the latest addition to Abtech range of enclosures for high current applications. Gareth Bruce, Marketing Manager for explains the concept behind the design "Our customers have been asking us for an enclosure that could accommodate a both wide variety of cable configurations and to allow the cable layout to be reconfigured if needed. Cable used for high current is often inflexible with restricted bending radii, so the design has to provide flexibility without bending the cables." He continues "as such we developed the SX with a series of tiered busbars that allow unrestricted access and flexibility for installation".

This busbar arrangement is housed within Abtech field proven SX stainless steel enclosure. It is suitable for high current (3000 Amps), medium voltage (up to 5kV) installations. "Due to the many possible combinations of busbar in terms of size and quantity and combined with different cable types, an almost infinite number of configurations are achievable" explains Bruce. "However, to provide a product that can be certified, understood and marketed we needed rationalise". The SX Busbar therefore can accommodate up to five conductors per phase, plus neutral with an optional earth bar facility. All versions are available



in a bottom or top entry only configuration. The maximum full load current.

The SX range is fully ATEX and IECEx compliant for use in Zone 1 and Zone 21 hazardous areas.

For more information and to download a datasheet, please visit:
www.abtech.co.uk

New Aircraft Warning Lights Medium Intensity Type A XLFE-MIA series

Cortem Group expands the range of obstruction warning lighting equipment with the medium intensity XLFE-MIA type A series intended for illuminating obstacles with height between 45 and 100 meters in the absence of ICAO painting.



XLFE-MIA series medium intensity LED Obstruction lighting fixtures can be installed in hazardous areas of industrial plants classified as Zone 1, Zone 2, Zone 21, Zone 22. The light source was developed by Cortem Group research & development department upon the experience of the past in the world of LED lighting.

The white color XLFE-MIA, with an intensity greater than 20,000 candles in daytime operation and greater than 2,000 candles in nighttime operation, complies with ICAO annex 14 for aviation obstruction warning lights of medium-intensity type A (corresponding to the FAA type of initials L-865).

The XLFE-MIA series has been designed for Zone 1 with an 'Ex db' optical source. The particular design avoids any type of optical error typical of the glass globes. The lamp body performs both the function of explosion protection and heat sink, thus avoiding the use of resin-coated optics, which are subject to deterioration over time.

As required by the ICAO regulations, the XLFE-MIA series has a flashing operation, standard at 20 fpm, upon request at 40 fpm. The light source also complies with EN/IEC 60079-28 standard ("op is" protection).

The installation is eased by the reduced dimensions, the wiring is done with a cable gland in a 'Ex eb' enclosure, avoiding the use of sealed cable glands or the resin finishing at high heights.

The signalling device is not a stand-alone device but it is part of a system that provides power from a control panel. This choice reduces maintenance operations by making the power supplies accessible from the control panel. With this system it is possible to manage the control of the lighting equipment failures, the eventual switching on of the spare indicators, the synchronization between different control panels also via cable or GPS technology.

This new lighting fixture is added to the Low intensity XLFE-4 series and Medium intensity type B XLFE-MIB series.

For more information visit:
www.cortemgroup.com

LifEx, the shift in the new lighting paradigm.

Less
is
More



We have reduced the size, lowered the weight, shortened the time of installation, removed any type of risk, reduced any maintenance intervention, avoided 70% of the components and saved tons of CO2. **We have also eliminated the possibility of improving it.**

Lifex



www.cortemgroup.com



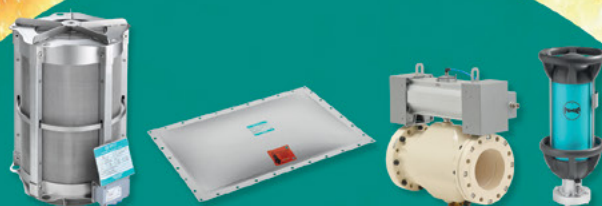
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REMBE® EXPLOSION SAFETY

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The next evolutionary level of explosion safety: REMBE iQ Safety Cockpit - smart home for factories

Visualisation of safety-relevant faults in the control room is only half the battle. In order to appropriately react to such faults, pre-defined counter measures have to be initiated – what sounds simple is a true challenge for plant operators in practice.

Although protective systems and plant components react autonomously, the right behavior of employees in critical situations is mandatory. Given the risk of human error, the REMBE iQ Safety Cockpit was developed and launched.

Similar to a process control system, the REMBE iQ Safety Cockpit offers an overview of all relevant protective and equipment system status, which can also be monitored in real time from any location remotely via smart phone. However, in addition to the PLC, detailed and automatic and semi-automatic action plans can be linked and initiated: In case of an event in a certain area, sending an email or an SMS to a pre-defined distribution group can be automated to bring the incident to their attention. Such a scenario could for example be that in the event of an explosion the responsible safety officer might be informed by text message via his service phone, the surveillance cameras in the affected area could be activated or set to a different mode and the management would receive an email. Nevertheless, more importantly, the REMBE iQ Safety Cockpit guides the logged in user through the pre-defined plan of action.

Forced guidance thereby would ensure that all desired and necessary process steps are followed in the event of a disruption. Those applications and process scenarios of the REMBE iQ Safety Cockpit can be individually configured for each plant; both analog and digital signals can be processed. In addition to the REMBE autonomous protective systems, GreCon spark extinguishing systems, camera systems or even fire detectors and other plant components can be combined and connected to the REMBE iQ Safety Cockpit.

Learnings from incidents and systematic root cause analysis are subject to be implemented in improved safety concepts. REMBE iQ Safety Cockpit supports as all data recorded during the emergency plan are compiled and archived in a comprehensive log. This data can be practically expended or adjusted via the various end devices. When the location of the accident is inspected, photos can be conveniently taken and loaded into the log (via app) for subsequent evaluation.

In the end, this means, that all conventional autonomous protective systems from REMBE have become smarter without sacrificing their actual strength, the fast and reliable function.

In the age of digitization, it is just as important to ensure a fast response time and the resulting high availability. The REMBE iQ Safety Cockpit also enables optimal integration of other interfaces through the individually coordinated visualization of each process. Faults or, in the worst case, explosions not only require a regulated emergency plan, but also a predictive maintenance that is not only possible through the pure workforce of the employee on site. By detecting the operationally relevant components such as explosion vents, quench valves for explosion protection or pyrolysis gas and fire detectors or grounding systems for explosion prevention, all these can be registered and connected to a material management system.

With the GSME and HOTSPOT detectors from REMBE, an artificial intelligence has been created that detects fire and explosion events at an early stage. The GSME detector is an artificial nose, "trained" for pyrolysis - popularly known as



smoldering gases, while the HOTSPOT detector represents an artificial eye that already detects surface temperature changes of 1 ° C.

Connected to the REMBE iQ Safety Cockpit, the two explosion prevention systems can evaluate changes in state and bring the system into a safe state either automatically or via precise instructions to the operator.

If an event, such as an explosion occurs, the system recognizes which areas are affected and provides information about which spare parts are required in order to restore the system to a safe state as quickly as possible. These functions can be submitted in the operator's system as a "suggestion" or sent directly to the manufacturer as a non-binding request. This creates the option to reduce, the time of plant downtime.

In a nutshell: REMBE iQ Safety Cockpit is nothing else than a smart home control or driver assistance system in the automotive industry. Those are used to improve the efficiency and safety of driving a car and enable, in the right mix of auxiliary sensors and smart detectors, autonomous driving. Staying in that picture, simply spoken, REMBE iQ Safety Cockpit, such as an driver assistance system for plants will allow autonomous operation and push safety and efficiency to the highest possible level in the industry 4.0.

For more information visit:
www.rembe.com



EARTHING CONTROL

There are two Earthing Monitors within the StuvEx range for Gas and Dust applications.

GAS
OR
DUST



- Competitively priced and easy to install.
- New stainless-steel housing for easy cleaning and maintenance.
- Redesigned facia enables the operator to ensure the best possible connection.
- Failsafe operation – visual confirmation of correct earthing via green/red lights.
- Automatically recognises the object to be earthed.
- Atex Certified and compliant with IEC 60079-31-1 and NFOA77.



Gas Version

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Enerpac Introduces LAT-Series Air Powered Hydraulic High Torque Wrench Pumps

For hydraulic torque wrench applications in areas hard to access with larger air powered pumps, the Enerpac LAT Air Hydraulic Torque Wrench Pump combines compact design and high productivity.

Featuring a proven Enerpac piston design, reinforced Filter Regulator Lubricator (FRL) support and air supply connection, the LAT Air Hydraulic Torque Wrench Pump will provide years of reliable service with fastening and break out speeds to keep jobs on schedule and under budget.

Improved Operator Efficiency and Ergonomics

Weighing under 18.2 kg with oil, the LAT Air Hydraulic Torque Wrench Pump is easy to lift, transport and manoeuvre. The pump comes with an integrated carry handle and can be carried by a single operator up ladders and stairs when a crane, hoist or elevator is not available. It is easy to manoeuvre in narrow and constrained spaces such as scaffolding, catwalks, pipe racks and lifts.

Higher Productivity

The LAT Air Hydraulic Torque Wrench Pump has best-in-class, flow-to-weight performance. Thanks to an industry proven air motor and a three-piston design, the pump enables operators to complete their hydraulic torque wrench applications faster to stay on time and under budget.

Reduced Equipment Downtime

The new LAT Air Hydraulic Torque Wrench Pump is a durable, reliable pump designed and tested for use in tough environments. The roll cage protects key components and provides increased support and protection of the FRL from vibration. The heavy-duty air supply connection and proven piston design enables long life. Key components are easy to access

for service and a skid rail accessory prevents reservoir wear from rough surfaces.



Additional key features include:

- Optimized for use with the newly introduced Enerpac DSX aluminium torque wrenches
- Large oil capacity: 3 litre, 1.9 litre useable
- Rugged 12.7mm (½") air supply connection with integrated roll cage support
- 10.2cm (4") calibrated gauge
- ATEX certified
- Two button pendant with 4.5m cable
- Two oil fill sight glass indicators
- User Adjustable Relief Valve.

The Enerpac LAT Air Hydraulic Torque Wrench Pump is available now through Enerpac distributors. For more information visit: www.enerpac.com.

i.safe MOBILE joins hands with AMA to bring remote assistance to explosive hazardous industrial environments

i.safe MOBILE and AMA have announced a strategic partnership to improve safety, efficiency and productivity of field teams in explosive hazardous industrial environments. i.safe MOBILE's intrinsically safe, rugged smartphones and tablets are tested worldwide and certified by renowned notified bodies to be sure that they satisfy all country-specific requirements.

i.safe MOBILE's products are ATEX, IECEx, CSA, EAC, etc. compliant and adhere to the most stringent safety protocols and standards set by petrochemical, pharmaceutical, or food industry, to name a few.

AMA's XpertEye remote assistance solution, in combination with i.safe MOBILE's robust devices, brings a new level of performance to industrial workers and will allow them to take full advantage of assisted reality and guided workflows, even in

explosive work environments.

"We are very excited to team up with AMA and enrich our customers' experience by offering a remote assistance solution on i.safe MOBILE's rugged devices. Industrial frontline workers will now be able to benefit from unequaled and effective remote assistance," comments Martin Haaf, CEO at i.safe MOBILE.

"We are committed to providing our industrial



customers with robust, secure, and future-proof solutions. Partnering with i.safe MOBILE gives us the chance to accelerate the digital transformation of our customers by deploying new technologies into hazard-rated areas," confirms Guillaume Campion, VP Products and Partnerships at AMA.

For more information, visit:

www.isafe-mobile.com/en.html

NEW PORTAdec 500 Portable Decontamination Misting Shower

Helping businesses support their COVID-19 containment strategies

Hughes Safety Showers are proud to announce the launch of the PORTAdec 500, a portable multi-nozzle decontamination misting shower, suitable for general use as part of overall hygiene facilities or for the decontamination of PPE prior to removal.

In these unprecedented times as more businesses begin to re-open, the safety of the workforce is paramount. With the PORTAdec 500, users are provided with a top to toe decontamination via a fine mist of electrolyzed water. 100% safe for human use, and of no danger to the environment, this disinfectant solution is non-toxic and can be used on clothes and skin. In addition, a self-sanitising mat at the base of the unit ensures the soles of shoes are decontaminated prior to stepping onto the drying area of the demarcation zone mat.

A 15 litre cylinder is filled with the electrolyzed water and requires no power, allowing the unit to be entirely portable and suitable for use both indoors and outdoors. All components are stored within a transportable case on wheels and are quickly deployed.

"With over 50 years expertise in the design, manufacture and supply of emergency safety showers, eye/ face wash and decontamination equipment, Hughes are ideally placed to offer innovative engineered solutions for demanding life-saving situations and for the current circumstances we now face", commented Paul Darlington, Managing Director of Hughes Safety Showers. "With enquiries from manufacturing and petrochemical sites to dentists and adult learning



centres, we believe this product could help many types of businesses in supporting their COVID-19 containment strategies."

Visit www.hughes-safety.com to learn more.

Gerromatic radial shaft seal minimises wear and maximises service life

The Gerromatic radial shaft seal from Freudenberg Sealing Technologies comprises a stainless steel retaining element and a high-performance PTFE wave-shaped sealing lip that runs in a novel sinusoidal pattern on the shaft surface.

As the shaft rotates, each point of the sealing lip repeatedly covers a new area of the shaft that is wetted with medium. The Gerromatic radial shaft seal is available via Dichtomatik Ltd, the exclusive provider for Freudenberg's food and beverage related sealing products in the UK.

The seal is intended for use in axially accessible installation spaces, whereby the metallic clamping ring enables an exceptionally tight fit. The Gerromatic rotary shaft seal withstands a high-pressure load of up to 8 bar, and temperatures of between -80°C and +200°C. In other applications, a sliding speed of up to 25 m/s can be achieved.

Each of the various PTFE types, such as PTFE Y002, not only have the relevant food approvals according to EU regulation 10/2011 and the FDA (Food and Drug Administration), but PTFE Y002 also complies with the pharmaceutical regulations

of USP Class VI. In addition, the materials are particularly resistant to CIP/SIP (cleaning in place/sterilisation in place) cleaning media that are commonly used in the process industry. These outstanding properties make the Gerromatic particularly well suited to wet-running applications in food and beverage plants.

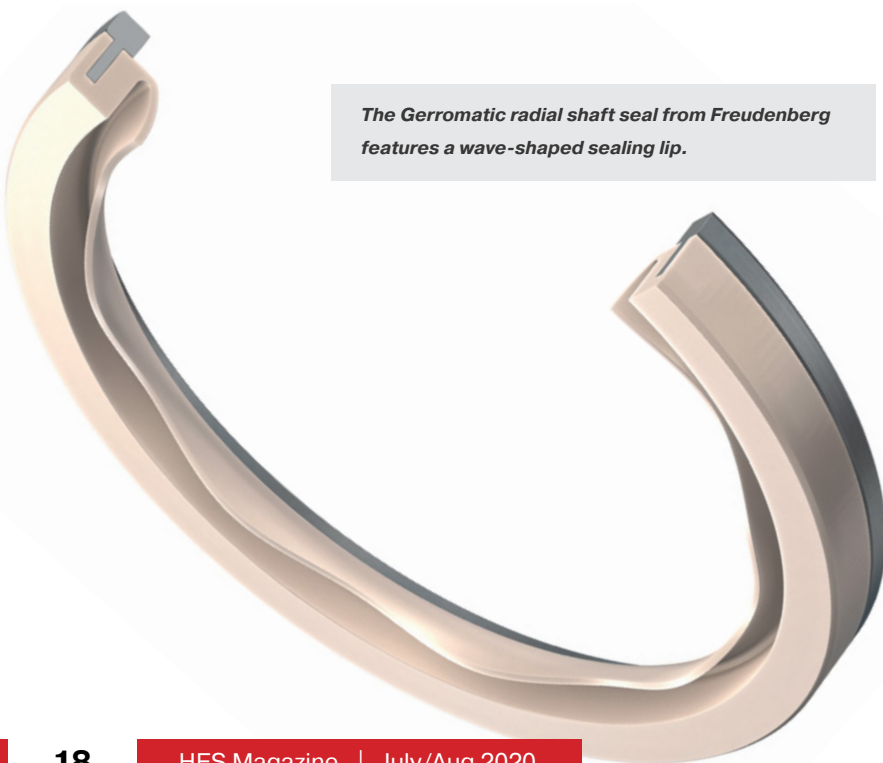
Delivering minimal wear and maximum service life, the Gerromatic radial shaft seal also offers a unique self-cleaning effect. Thanks to the innovative contact zone of the wavy sealing lip with the shaft, abrasive particles are washed away immediately. This mechanism prevents particles from remaining in-situ under the sealing lip, where they can cause wear and leakage. Additionally, the alternating flat and linear contact zone provides pressure distribution, which is highly advantageous. Compared with conventional rotary shaft seals, the sealing lip of the Gerromatic

offers maximum stiffness and thus maintains its full functionality even at high operating pressures.

In contrast, the symmetrical sealing lip of a proven standard seal offers straight-line contact that can lead to the displacement of medium in the contact zone. This dry running increases friction and, subsequently, temperature. As a result, a special sealing lip shape has been developed for the Gerromatic that has sinusoidal contact with the shaft. This design efficiently reduces the effect of friction, which is beneficial with temperature-sensitive media. In standard 96-hour tests at 0.5 MPa pressure and 5 m/s circumferential speed, the Gerromatic shows a 20°C lower temperature rise of the seal in comparison with proven rotary shaft seals. The Gerromatic also sets a new standard for high-pressure applications with regard to leakage behaviour (the leakage rate is negligible under the same test conditions).

The extensive sealing portfolio from Freudenberg Sealing Technologies includes a range of food-compatible and hygiene-safe radial shaft seals. These seals are made of high-performance materials and each has a design tailored to specific applications, including the Gerromatic for food and beverage plants. Experts at Freudenberg Sealing Technologies continuously monitor current market needs and proactively develop new product designs and sealing materials that deliver optimised performance in line with application requirements. The Gerromatic radial shaft seal is the latest in a long line of innovations that have emerged from the development lab at Freudenberg.

The Gerromatic radial shaft seal from Freudenberg features a wave-shaped sealing lip.



Further information is available at:
<https://foodandbeverage.fst.com/products-en/innovations#Gerromatic>

Give Workplaces A Clean Bill Of Health

With the UK Government continuing to ease lockdown measures, increasing numbers of companies and commercial premises are opening for business after a hiatus due to COVID-19.



To help protect the health of those making their way back to the office, factory, shop, pub, gym or any other place of work, a new ultra-effective surface sanitiser – Hi-KLEEN – is being introduced by Hi-line Industries. Spraying a single coating of HI-KLEEN on to surfaces such as doors, handles, handrails, chairs and desks will not only kill coronavirus, it will provide protection against further contamination for up to five hours.

Hi-KLEEN has been specially formulated to kill and inhibit both bacteria and viruses (including enveloped viruses such as coronavirus) on hard or soft surfaces subject to frequent contact. Simply spray at a distance of approximately 10–20 cm from the surface to be treated for effective

protection. This odour-free, clear product is ideal for offices, factories (including food plants), conference centres, sports clubs, hospitals, health centres, educational facilities, care homes, entertainment/hospitality venues (including restaurants and pubs), and even transport.

Notably, active biocides present in the formulation provide longer-lasting protection than alcohol-based preparations. Hi-line's new surface sanitiser does not stain, is non-corrosive and will give a streak and smear-free finish to most polished surfaces, including glass and stainless steel. The product is safe to use and alcohol-free, meaning that there is no drying or irritation to the skin.

To provide proof of efficacy in the control of harmful micro-organisms, HI-KLEEN has been tested to BS EN 1276, which is the European standard for the bactericidal activity of chemical disinfectants. In order to meet the standard, products are tested by an independent laboratory and must kill 99.999% of bacteria within 5 minutes.

Composed of organic, non-chlorinated solvents, HI-KLEEN is offered by Hi-line Industries in both 500ml aerosols and disposable 17kg canisters. The latter is particularly useful for those looking to sanitise entire rooms, providing a typical coverage of 750 square metres. Canisters are connected by either a 3.5 or 5.5 metre hose to a spray gun, delivering an easy-to-use, self-contained, time-saving spraying system that requires minimal set-up.

Any business owners or managers worried about controlling the spread of COVID-19 as the country returns to work can rely on HI-KLEEN to keep surfaces and rooms free of harmful contamination, in turn protecting the health of staff and visitors alike.

Further information is available from:

Hi-line Industries Ltd

Telephone: 01283 533377

e-mail:

enquiries@hilineindustries.com

www.hilineindustries.com

Safer Chain Cutting

Cutting chain is a job that many tools, technicians and even businesses struggle to do quickly and safely. A new and improved way of cutting chain is now available that comes with many benefits, including improved safety and productivity.



There's a reason why chain is used almost everywhere. Chain's durability, high breaking force, and capacity to carry a working load makes it the preferred option in a wide variety of applications. Where chain really shines is within the crane and hoist market—you'll see it used in material handling, chain blocks, and chain hoists.

When doing overhead lifts, chains must be specified as grade 80 or higher which ensures that it is made of well-manufactured metal and is extremely durable. Chains must also be regularly inspected to ensure there are no deformities. If a chain link is damaged, it will not be able to handle the rated load and using the chain could be dangerous.

Whether cutting chain to size for your specific application or removing damaged links, there

are a variety of ways to cut chain today, but many come with downsides.

Cut-off Grinders

A cut-off grinder is a versatile tool that is often found in many shops and on jobsites but it's not a tool specifically designed to cut chain. Have you ever seen those images on the internet of rotating blade pieces stuck in safety glasses? Well, that's one way to illustrate the danger of using a grinder to cut chain. If your cut-off wheel gets pinched in the material, has any deformation, or is improperly sized for your grinder, you risk the cut-off wheel exploding. A grinder spinning at thousands of RPMs has incredible force and momentum. If the blade breaks, those metal pieces will go flying, and if a protective guard is not being used, the operator may be injured.

When using a grinder, there are also risks associated with shooting sparks. These small pieces of burning metal can injure an operator who isn't wearing protective safety gear. Sparks could also potentially start a fire. To avoid causing injury to other workers from sparks, you need to keep about a 3 metre perimeter around the area where the work is being done.

Sparks can negatively impact your working environment in another way. Both the noise and the metal dust that grinders create make for unsafe working conditions that require the use of a respirator while cutting.

Finally, when using a grinder, there's also the risk of hitting an adjacent link and causing damage. It takes a good amount of focus to keep a vibrating grinder steady throughout the amount of time it takes to cut a chain. While cutting a single chain with a grinder might not be that big of a deal, if you must do that several times a day, fatigue can quickly set in. If the grinder touches an adjacent link, it would be compromised. A mistake like that wastes valuable raw materials and time.

Torches

A torch is another tool that can be found in many shops and on jobsites. Torches have a lot of versatility when it comes to cutting. A torch can cut through thick sheet metal, wire rope, or strong chain. And while a torch will get the job done slightly faster than a grinder, it also has its downsides.

First, a torch is essentially a very concentrated open flame. This intense heat is not only being thrown forward, it also bounces off the chain and comes back at the operator. This is known as heat kick-back and it can cause operator fatigue. Imagine it's a 100-degree day with 100% humidity

in an unairconditioned shop in Houston and your job is to prepare 50 chains for a customer order using a torch. Not only will you easily be drenched in sweat, fatigue will soon set in. When it does, you risk damaging an adjacent link.

Like grinders, another downside to torches are the shooting sparks which can cause injury to nearby workers. The operator themselves will need to wear a protective facemask and flame-retardant clothing, as well as heat-resistant gloves to handle the chain, which will become extremely hot from the intense heat of the torch.

Manual chain cutters

A manual chain cutter is one that works by pulling down on a lever to either mechanically cut a chain or manually pump a hydraulic system to cut it. While it is an inexpensive option, there are a few downsides. First, it relies on the force of a single person to cut the chain. And second, it can't cut very large pieces of chain. Most manual chain cutters can't handle chain thicker than 9.5mm. When you need to cut a chain that is 12.5 mm thick or greater, a manual chain cutter is not going to be an option.

Enerpac introduces a new cutting solution

Enerpac recently launched a series of industrial cutters, including a chain cutter that improves safety and productivity. The Enerpac chain cutter can quickly cut through heavy-duty chain links—and it works by having an operator pull a trigger. It uses a cylinder driven by a radial pump powered by an electric motor. A highly durable blade attached to the front of the tool works against another angled blade to cut the chain with hydraulic force. A chain as thick as 32 mm can be cut in less than 40 seconds.

When it comes to safety, the Enerpac chain cutter cuts links behind an enclosed, transparent safety guard, protecting the operator's hand from potential injury while allowing the operator to monitor the cutting process. With no sparks or open flames to worry about, the operator is

safe not wearing fire-retardant clothing—all that's needed are regular safety gloves and glasses. Not having to put on flame-retardant clothing, a protective facemask, or special heat-resistant gloves can save the operator valuable time. After the chain is cut, it will be cool enough to handle, so the operator can move on to the next task.

Adjacent chain links are protected from damage when using the Enerpac chain cutter. The angled blade automatically pushes the other links out of the way, guaranteeing that you will always be cutting a single link—no matter its size—without compromising adjacent ones.

Another important benefit is that the tool saves the operator from fatigue. Cutters produce minimal vibration, helping prevent HAVS (Hand Arm Vibration Syndrome). Less fatigue can help improve operator productivity. And clean-up is easy, which saves even more time. This electrically powered tool plugs into 120V or 230V outlets and can easily be transported wherever an external power source is available.

The new Enerpac chain cutter is going to change the way people cut chain on jobsites and in shops everywhere. It's a very capable tool that brings a new level of speed and safety to an otherwise difficult task.

When safety and time matter, the right tool makes



all the difference. Enerpac industrial cutters offer a quick, safer cutting solution with no risk of exploding blades or sparks and open flame. The Enerpac new line of industrial cutters includes five families of tools designed to cut metal bar, industrial chain, wire rope and cables, metal tubes, profiles and similar materials. Enerpac cutters are built to handle industrial-grade materials on a daily basis. Each cutter is designed and built to last in tough working conditions for a simpler and more productive workflow.

For more information on all Enerpac industrial cutters, to see videos of them action, or to request a demo at your jobsite, please visit www.enerpac.com/en-us/news/new-product/new-industrial-cutters.

Remote I/O Valve Terminal for Zone 1/21 Areas Make Room for Your Standard

Why are so many isolating switching amplifiers and pneumatic valve terminals still installed in large control cabinets to send intrinsically safe signals and pneumatic drives from Ex zoned areas?

There are numerous concepts for planning of potentially explosive systems, such as the optimization of the zoning, the reduction in size of zoned areas or the wish to run everything out of hazardous areas into a central cabinet via cable routes.

The crux of the issue is that the calculation of the cabling is often not within the scope of the plant or machine builder. Logically speaking, the effort and costs arise elsewhere, but they do not vanish into thin air. An innovative solution while considering the potential trade-offs must be carefully considered.

It is clear that many plants, especially in the chemical industry, have long been equipped with Ex Remote IO systems. Large and modular Remote IO cabinets are widely established in this industry. In this article I would like to draw the attention of plant and machine builders to a new concept.

What is new about it and what are the benefits?

The new concept for zoned areas is: Place small Remote IO valve terminals distributed within a system instead of building central or large decentralized solutions. The aim is to collect the intrinsically safe signals on-site and to supply the pneumatic drives decentrally via short pneumatic lines. From there, communication takes place directly via PROFINET to the controller.

Newly developed technologies from non-hazardous areas are usually upgraded and certified for zoned areas with a time delay. In the case of products for Zone 2/22, this may happen very quickly. However, for devices for Zone 1/21,

which also supply sensors from Zone 0/20, new and innovative products can usually only be implemented with considerable effort by the manufacturer.

Through the successful partnership between BEx Solution, FESTO and Exepd, the 3 in 1 solution was created, which as a result provides an innovative, tried-and-tested and certified compact Remote IO valve terminal for potentially explosive areas in zone 1/21.

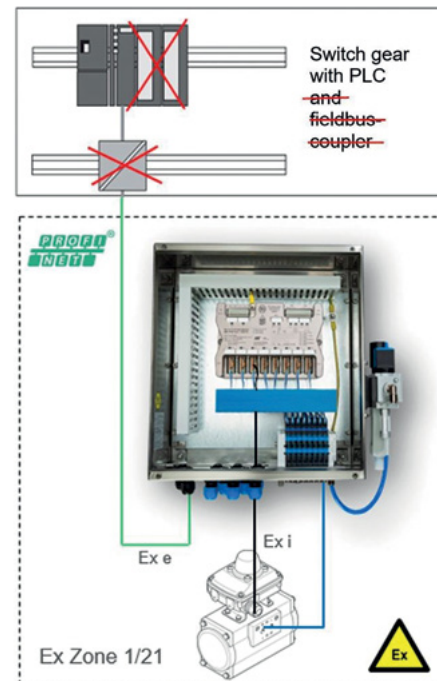
What added value results from this solution?

You gain space, time and money! The small boxes combine bus nodes, isolating switching amplifiers, intrinsically safe IO channels and the valve terminal, guaranteeing short distances to the sensors and the pneumatic actuators. Connect compressed air, power supply and PROFINET, quickly and easily!

Now many will say yes, but what about the software effort? Those who already have experience know that it does work but costs a lot of time and money. We are back on the big topic of resources. When developing the new concept, particular care was taken to ensure that the Remote IO module itself does not have to be configured. Communication and I/O settings take place via 64 I/O bytes.

Areas of application: Painting plants, pharmaceutical and chemical industry, bulk goods plants, mixing / grinding plants, industrial heating / cooling systems, sewage plants, and much more.

Functions: The connection is possible via PROFINET or Modbus TCP / IP. Up to 16 pcs 3/2-way valves or up to 8 pcs 5/2-way or 5/3-



way valves can be configured, or combinations thereof. 16 Namur inputs are available for the position indicators. The module is also equipped with analogue 4 to 20mA Ex i signals

One final Point: Many customers like the compact concept very much, but they have decided on existing solutions based on long-term specifications by their end customers or company-specific specifications. That is certainly the reality, especially in explosion-prone systems, where technology should last for several decades. With existing and well performing systems, you have to think twice about a change. But when it comes to modernizing old systems or planning new systems, we recommend that you take a closer look at this solution which will enable more flexibility in the future.

“Not yet convinced , simply request a test device”

More information at:
exloc.co.uk/bex-remote-io-valve-terminal/

Help prevent a second wave: Updated Guidelines published to help organizations work safely and stop the spread of COVID-19

Version 2 of BSI's Safe Working Guidelines has published today, to help organizations protect people at work from the ongoing coronavirus risks, mitigate outbreaks and build long-term resilience.

The newly updated Guidelines include hundreds of contributions from experts across industry, academia, and governments globally, to consolidate practical guidance and experiences from the pandemic. In addition to safety planning and assessment of risks, it now provides advice on managing suspected or confirmed cases of COVID-19 in all workplaces, including at home and in mobile settings.

The Guidelines include recommendations to:

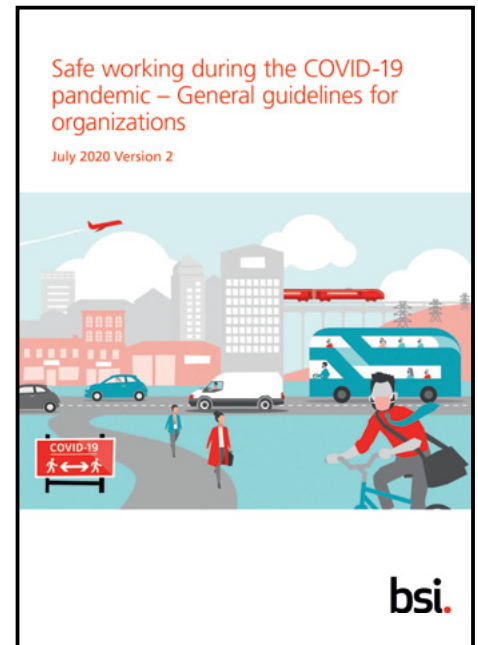
- Treat any person who becomes unwell in the workplace as potentially having COVID-19
- Ensure suitable PPE is provided for first aiders
- Isolate the person who is unwell and provide them with a face mask
- Require the affected person to go home (or to a medical facility)
- Establish if an affected worker has been in close contact with other workers and support those workers to self-isolate
- Ensure the areas the affected person has been in are either isolated or cleaned
- Provide clear guidance on when it is safe for a worker who has had COVID-19 to return to work.

The Guidelines state that reasonable adjustments should be made to support workers returning to work after contracting COVID-19, taking into account their physical and psychological needs. One such example is allowing flexible work hours and time off.

Scott Steedman, Director of Standards at BSI said, "This week, as many organizations reopen their doors to customers and staff, we are faced with the challenge of protecting the public by helping to prevent work-related outbreaks of the virus. Working with technical experts, BSI has set out clear and practical guidance for organizations to mitigate the risks of COVID-19, minimize transmission, and manage suspected and confirmed cases".

The Guidelines highlight the need to make sure safety measures are inclusive and accessible to everyone, and to recognize the importance of workers' psychological health and well-being. It also includes new guidance on:

- Safe use of toilets
- Working from home
- Reporting to external parties.



Working with an Advisory Group*, BSI will continue to revise the Guidelines, as often as necessary, to reflect the dynamic situation. Each revision will take into account public feedback, government guidance, the level of risk, and emerging knowledge. The third Version of the guidelines is expected to publish in August.

To download Version 2, have your say on the safe working guidelines and/or sign-up to be alerted for the latest versions visit:

<https://www.bsigroup.com/en-GB/topics/novel-coronavirus-covid-19/covid-19-guidelines/>

Free app from Link Instruments boosts productivity by calculating fire extinguisher fill levels

Field service technicians can benefit from a new app that calculates the liquid level in fire extinguishers. Using knowledge of the fill weight, the app indicates the fill level of liquid CO₂ in the cylinder so that technicians can easily locate the exact liquid/gas boundary using a level checking device.

The level checking device could be a temperature sensing strip for example or an ultrasonic liquid level indicator like the Link Instruments' ULLC2001.

Developed in-house by Link Instruments, the app is completely free of charge to download and can also be used in reverse to calculate the fill weight if the liquid level is known. Running on laptops, tablets and smartphones, both iPhone and Android, it can be used in the field even when offline.

"The convenience of this app will make servicing easier for field fire safety technicians, including in the marine sector," said Link Instruments' Dominique Christie. "We believe the app is the only one of its type."

It uses the SG factors given in the Link Instruments' ULLC200 instruction manual, which are based on the company's extensive experience of testing for calibration checks on a CO₂ cylinder of known weight as well as tests using strip sensors and other thermal devices.

Experience indicates the appropriate calculation factor is 1.0 for a cylinder temperature of 15°C, 0.9 for 20°C and 0.8 for 25°C, which is normally the temperature limit for testing CO₂. Normally the liquid level is found to be within 5% to 10% of calculations made using these factors.

CO₂ cylinders are normally two-thirds full, with adjustments required for temperature and the

operating instructions for the level checking instrument. However, using the above factors an approximate level can be produced, which is particularly useful if a

35kg cylinder has been filled with 45kg for example or where a larger cylinder has a lower volume tropical fill.

The app will also be able to work with extinguishers that use other liquid fire suppressing agents such as FM-200 and NOVEC 1230.

For more information visit:
www.linkinst.com



Aggreko ramps up moisture control for shipping and aviation

With fleets of vessels and aircraft forced into cold lay-ups and grounded due to the COVID-19 crisis, companies need to consider the risk of long-term damage due to uncontrolled humidity levels.

With the pandemic having a marked effect on demand for non-commercial shipping and flights, more aircraft and vessels than ever are being grounded or moored for cost-effective preservation. However, without an adequate moisture control strategy to protect their critical components, electrical technology and structures, the condition of these vehicles could soon deteriorate, according to Aggreko.

If left unchecked, high-humidity conditions could lead to otherwise avoidable consequences for fleet owners and operators, including extended vehicle reactivation timescales, and increased operating and commissioning costs. Uncontrolled humidity and temperature levels in storage can also impact maintenance projects such as re-coating aircraft, which requires a controlled environment to ensure coatings do not fail.

By using ground-based dehumidification systems and associated distribution trunking to achieve sufficient air circulation and maintain optimum conditions, these vehicles can instead be protected against such concerns. Implementing monitoring systems to record

and alert on conditions within storage areas also allows vehicle owners full transparency and peace-of-mind that the right parameters are being maintained at all times.

"The coronavirus has hugely impacted both the aerospace and shipping industries on a previously unprecedented scale," says Ryan Stanley, Moisture Control Specialist at Aggreko. "This collapse in demand has often meant fleet owners and operators have had no choice but to anchor or place their vehicles in storage."

"However, this presents its own problems – namely, that if the climatic conditions around these craft are not controlled, these vehicles could become impaired over a prolonged period of time. In turn, companies already hit commercially by the pandemic could suffer a second blow as they take steps to resume regular operations."

"Through the controlled dehumidification of internal spaces, including void spaces between machinery and pipelines, we can prevent issues including



sweating, rust, humidity corrosion damage, condensation and moisture absorption. Applying and continually monitoring optimum temperature and moisture control parameters also enables necessary maintenance to be carried out while these craft are in storage.

"Consequently, these important assets can be protected while idle, and quickly activated when they need to be required once more. Not doing so may result in unnecessary works in the future that could lead to financial and reputational issues for vehicle owners."

For more information on Aggreko's range of industrial humidifier solutions, please visit www.aggreko.com.

Temperature monitoring for Covid-19 samples

Remote alert system in place for University of Oxford lab

Remote monitoring specialist Omniflex has supplied an SMS alert system to the University of Oxford's Peter Medawar Building for Pathogen Research. The remote module allows the lab's researchers to receive 24/7 alerts directly to their mobile phone in the event that freezers holding samples deviate from the critical temperature window. It is understood the laboratory is holding Covid-19 samples as part of the effort to develop a vaccine.

web portal, Data2Desktop, to access the system remotely using any device, including smartphone, tablet, laptop or PC. The web-based system also logs all historical events and automatically generates a daily, weekly and monthly report summarising deviations and alarm events for conformance reporting.

"While the food in your home refrigerator won't spoil if the temperature fluctuates slightly, it's critical that laboratories can keep pathogen samples at a uniform sub-zero temperature to prevent them from being damaged or destroyed," explained Gary Bradshaw, director at Omniflex UK. "Because it's not always possible to have researchers in the lab 24 hours a day, it's vital that some form of automated alert system is in place to inform designated staff when the freezer temperature deviates from set limits.

"We've designed the Teleterm M3 RTU for low power operation. The unit has a power rating of 9-30Vdc so that it can be used with a standby battery-backup. It can also take up to 12 configurable analogue or digital signals and is fully programmable using IEC61131-3 standard languages. It also offers additional connectivity in the form of Ethernet for wired, desktop use, as well as two serial ports, 3G and an SD card slot used for local alarm logging back-up."



Omniflex has supplied the Medawar Building with its Teleterm M3 GSM remote terminal unit (RTU). The device connects using a serial ModBus port to the labs' Eltek Monitoring system that controls a number of liquid nitrogen and -80 degrees Celsius freezers.

When the Teleterm M3 detects a temperature fluctuation that exceeds the allowable limits set

by the monitoring system, it automatically sends alerts via email or SMS to designated email accounts or mobile phones anywhere in the world. The user must then reply to acknowledge the alarm condition. If the unit fails to receive a response, the system escalates the alert to another set of mobile phones or email accounts.

As well as alerts, users can also use Omniflex's

To find out more about how you can set up SMS and web alerts for your critical application, call 01614 914144 or visit the Omniflex website today: www.omniflex.com

568 Hours Of Downtime Saved With Adhesive Thread Locking

Whenever a mechanical failure occurs outside the schedule maintenance window it has the potential not only to disrupt production but cost money. And as an Asian manufacturer of tyres will testify, the financial impact can be substantial. In one year, the company recorded no less than 284 maintenance emergencies that were attributed to bolts self-loosening on tyre moulding presses.



Each incident resulted in two hours of downtime which, in total, amounted to over £400,000 of production losses in the 12-month period.

The nuts kept loosening through thermal expansion during the machines' operation. The initial response was for maintenance engineers to re-torque the nuts regularly to correct the clamp load but without any method of locking the thread against loosening, the problems prevailed.

Self-loosening is caused by any type of dynamic load, such as vibration or changes in temperature, insufficient clamp load and poorly fitting parts. These load changes lead to short-term frictionless situations where the bolt unwinds from the nut. The sum of these very small movements ultimately results in the loosening of the threaded assembly.

While mechanical methods of locking threads have their merits, none address the gap problem and therefore their ability to withstand loosening through vibration or thermal expansion is compromised. For this reason, the tyre manufacturer chose to use a thread locking adhesive instead.

Increasingly adhesive thread locking is proving very popular, either for use on its own, or to complement a mechanical thread locker. As

well as preventing unwanted movement and loosening it effectively seals the assembly against leaks and corrosion.

Available as free-flowing liquids or semi-solid adhesives, these products completely fill the gaps between mating threads of fasteners and joints. Wicking grade formulations are also available that will creep into an existing assembly and between already-torqued threads.

The product the tyre manufacturer used was LOCTITE® 243, a medium strength thread locker that is formulated to allow disassembly with hand tools for servicing. And in common with several in this range LOCTITE 243 has been continuously developed. Its temperature resistance, for example, has been increased to 180°C, from 150°C, extending the products' scope of application; heat ageing resistance has also been improved.

Another important development, from a time-saving perspective, is greater resistance to oil. This means LOCTITE 243 is ideal for use in the industrial environment where it is often difficult to remove all grease and grime.

For the tyre manufacturer, the use of LOCTITE 243 has resulted in a cost saving of £400,000 – a significant amount for such a small investment.

For more information on adhesive thread locking, Henkel has produced an e-book that is available to download at <https://www.henkel-adhesives.com/uk/en/insights/tl-ebook.html>

New Additions: Ultra High Temperature Sealants

Specifically formulated for use in high temperature and high-pressure environments, LOCTITE® NS 5540 and 5550 sealing compounds cure in the presence of heat to form a mechanical seal on metal-to-metal flanges and fittings.



LOCTITE NS 5540 is a single component, high strength, product whose low viscosity makes it easily brushable onto flanges or threads and is suitable for sealing flanges up to 20MPa (2900 psi). For higher pressure requirements, up to 34.5MPa (5000 psi), LOCTITE NS 5550 is recommended. This product is a thermal reactive, heavy bodied, fibrous paste that fills large gaps by expanding upon cure, both have a service temperature rating of 30°C to 700°C and are suitable for sealing steam, hydrocarbons, gases and other process fluids typically found in power generation facilities, pulp and paper mills, mines and oil & gas refineries. Likely applications for LOCTITE NS 5540 are sealing threaded fittings, pump and turbine case flanges, doors, boiler sight glasses and for repairing leaking gaskets. LOCTITE NS 5540 is the best choice for duct flanges, exhaust systems, pipe connections and pressure vessels.

To see how both products are applied go to https://10122-forms.de/downloads/AG_WE/LOCTITE_NS_5540_5550/Loctite-ExtremeTemp_HowTo-HD1280x720.mp4

Remote Subsea Inspection Technology Overcomes Challenges

Integrated technology and inspection company, MCS, has launched a new system which allows an entire offshore inspection campaign to be delivered remotely.



The Remote Inspection System (RIS) utilises sophisticated data compression and transfer as well as 3D imagery and data capture to move all work completed from an offshore vessel inspection container onshore.

The solution overcomes travel restrictions and ensures safety of people by allowing work to be completed anywhere, including at home, with live video feeds and clear voice communication.

Wael Bakr, founder and CEO of MCS, said: "We constantly strive to solve challenges for our clients with slick and proven technology.

"The entire offshore industry is having to adapt very quickly to the current global situation, ensure

the health and safety of teams while continuing operational excellence to meet the world's demand for energy.

"The RIS system is part of our evolution of technologies towards a transformational programme to fully support remote digitisation, automation and machine learning as well as the efficient data management, data gathering and evaluation of inspection asset integrity programmes.

"The RIS not only overcomes potential challenges caused by Covid-19, it saves money and allows inspection campaigns to be completed three times faster than using a traditional offshore team.

"As the operation can be completed entirely from onshore, the team is only working during hours of operation saving on mobilisation and demobilisation, transit and weather delays. It offers complete flexibility. Once the system has been set-up on a vessel, the RIS can be used instantly on request of the client, even at very short notice.

"The system has been used successfully by several OPCOs in the Middle East, allowing our clients to maintain maximum efficiency during 24hour operations.

"We have delivered reporting from platform inspections just five days after inspection activities were complete, which is much faster than would be expected from a team offshore. We are proving that this system can work just as efficiently, if not more so, than a traditional offshore team.

"At MCS, innovation is in our DNA and we invest heavily in Research and Development (R&D) from our own innovation house. The result is state-of-the-art software and technology which works.

"The possibilities are endless and we can see the expansion of this system to encompass many other offshore activities including geophysical data processing, well logging, pipeline installation, topside production monitoring and many others. The technology is an excellent example of how innovation will help our industry overcome the challenges sent to try us."

www.cortezsubsea.com

NEW – Low-cost Indoor/Outdoor Air Quality Monitoring

At a time when air quality is never far from the news headlines, Shawcity is delighted to announce the latest multi-function environmental monitor on the UK market.



The 6-channel TSI Bluesky™ air quality monitor is a key new product as it offers simultaneous measurement of PM1, PM2.5, PM4 and PM10 mass concentrations as well as temperature and relative humidity – all in real time and a low cost.

Designed for indoor or outdoor use, Bluesky™ is a laser-based optical particle counter, ideal for monitoring indoor air quality in industrial and manufacturing facilities as well as external

environmental monitoring. Typical users include health and safety professionals, air quality professionals and environmental consultants.

Lightweight and compact, the monitor is easy to install in or around any area of concern, including enclosed spaces, on a wall, pole, fence etc. It performs consistently across a wide range of humidity and temperature and is protected against rain, insects and direct sunlight.

An Internet of Things (IoT) device, Bluesky™ offers data interfacing using WiFi and comes with a standard micro-SD memory card for duplicate storage. Cloud-based and ultra-localised, monitors work individually or a network of multiple units can be deployed to show trends and hotspots, helping to inform decisions.

The monitor provides a real-time map of live data without the need for additional software or an app. Data sharing can be set to private, or can be accessed publicly on the platform via a log-in. With self-diagnostics, it can also notify the user of poor sensor performance while maintaining data integrity.

PM sensors are designed to easily be replaced in the field. The old sensor can be removed and the replacement simply slides into place. The lifespan of the sensor will vary depending on the concentration levels in any given area, but the manufacturer recommends they are replaced every 12 months.

The instrument is also designed to house four additional sensors for measuring gas concentrations, such as NO₂, Ozone and TVOCs. When these sensors are released in the near future, the manufacturer will arrange to convert your existing monitor to also measure gases if required.

Respirable Particulate		
Inhalable Level:	Particulate Size:	Symptoms Include:
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Contact Shawcity for more information, to discuss your requirements or to arrange a free site visit.
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Altus Selected as Partner for Hikvision's Innovative Screening Solutions

Hikvision, a world leading IoT solution provider has used its expertise to design a range of innovative solutions to support the industry in returning to work whilst mitigating the risk of staff safety. To bring the new range of thermal measurement and temperature monitoring equipment to the UK and Ireland, Altus Group, a leading distributor of capital equipment, has been selected as the ideal partner to gain traction within the region.

Building on its impressive portfolio of products to help business navigate to a new normal in the workplace, Altus is pleased to add Hikvision to its list of preeminent suppliers to offer safety solutions.

Altus will be stocking the Minmoe thermal measurement terminal as well as the very capable thermal measurement gate offering customers a capability regardless of budget for investment.

"Having a product with a reputation like Hikvision in our staff safety portfolio, allows us to support our customers with the very best technology available in the market at incredibly competitive prices," explained Matt Jones, Sales Director, Altus Group.

"Safety-related equipment is extremely important for companies as staff start to return to the workplace. Hikvision's solutions can be installed with ease and offers our customers peace of mind."

Human skin-surface temperature is an important indicator of physical health. Using thermographic technology, Hikvision's Minmoe touch-free access control and temperature screening solution is designed to achieve rapid preliminary screening

with high efficiency. It can be easily fitted to a wall at a building's reception or on a temperature screening terminal with floor standing bracket making it portable.

Alternatively, Hikvision's walk-through gate can be installed monitoring temperature as people walk through the reception. Adopting the thermal imagery technology, the walk-through detector realises non-contact temperature measurement with the face detection function of the camera making an accurate positioning of the measurement. Additionally the detector also supports metal detection making its use multifunctional.

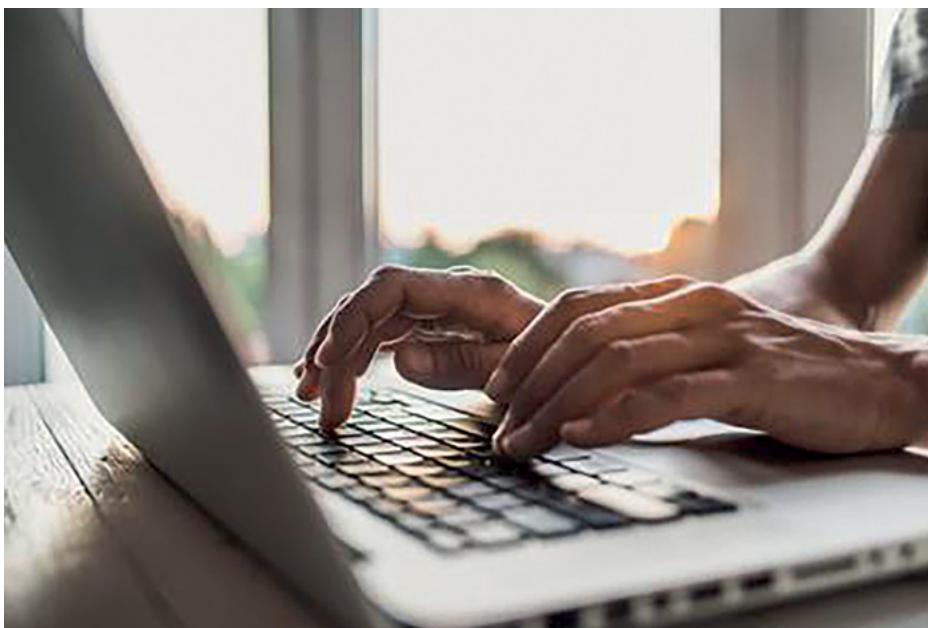
"Altus has already seen investments in both platforms but can see that the potential is massive as industry and the wider population brace for life in the new normal. With Hikvision, you have a thermal measurement solution with the potential of full traceability and analysis. Whether you are looking for a solution to help measure skin temperature, or a touch-free access terminal for your facility, this equipment can work well as a safety solution going forward," concluded Matt Jones.



For further information on Hikvision solutions, contact Altus at sales@altusgroup.co.uk. www.altusgroup.co.uk

Updates to HSE Guidance on Lone Working – Policies and Procedures Explained

In March 2020, the HSE updated its Protecting Lone Workers: How to Manage the Risks of Working Alone guidance document, which advises employers and employees on the factors that need to be considered when assessing and managing the risks to lone workers' health, safety and wellbeing.



This updated guidance has proven particularly well timed in light of the COVID-19 pandemic, which has seen hundreds of thousands of organisations adapting to these uncertain times by facilitating many of their employees working from home, or instructing them to carry out isolated activities on sites in order to comply with social distancing guidelines if they cannot work from home.

What is lone working?

The HSE classifies a lone worker as 'someone who works by themselves without close or direct supervision', and this incorporates a wide range of job roles. As well as home workers, such

employees as engineers, construction workers and field technicians whose role does not permit them to work at home are becoming increasingly familiar with lone working, with reduced capacities, staggered shift patterns and other such social distancing measures seeing employees frequently coming into situations where they work alone or without direct supervision for extended periods of time.

What must an employer of a lone worker do?

Despite lone working being a completely legal procedure, employers need to ensure that the

health, safety and wellbeing of lone workers is taken as seriously as it is for those employees based permanently on work premises/in near constant contact with their supervisors and fellow colleagues. Employers have a duty of care to ensure the health and safety of lone workers as far as is reasonably practicable under the Health and Safety at Work Act 1974, as well as being legally required to assess and manage the risks to lone working employees under the Management of Health and Safety at Work Regulations 1999.

Lone workers should be accommodated within an employer's general workplace risk assessment, with policies put in place to control, mitigate and remove the level of risk they face when working alone. As part of a lone working risk assessment checklist, employers must assess, monitor and review such factors as manual handling, illness, fire safety, slips, trips and falls, equipment failure and violence, implementing a range of control measures that apply to each individual employees' lone working environment that will help to reduce and eliminate such risks.

While those who are lone working face the same health and safety risks as any other employee, there is a greater risk of these hazards causing harm, as lone workers may not have anyone to provide help or support in the event of an incident. Employers need to be aware of this heightened level of risk, and as a result, all organisations are legally required to regularly review and

update their lone working procedures and risk assessments for lone workers to safeguard their health and wellbeing.

What is a lone working policy?

While employers are accountable for implementing lone working policies and procedures, lone workers are equally responsible for understanding and following them. As well as ensuring a positive safety culture, lone working policies clearly define employees' responsibilities and outline any guidance for reporting incidents. Examples of lone working procedures for employees include attending any training issued by the employer, identifying and reporting incidents, accidents and near misses and carrying out a monitoring or safety device when required.

What are the key updates within the HSE's Protecting Lone Workers guidance document?

A major area of focus for the HSE's Lone Working updated guidance document is that of employees' mental health, particularly the impact of lone working on stress and wellbeing. Not only does working alone have a higher chance of invoking feelings of isolation and disconnect due to the lack of social contact and the physical presence of colleagues, but it can also mean that employers are unable to detect the warning signs of an employee who may be experiencing or at risk of

experiencing work-related stress, depression or anxiety.

In light of its latest annual statistics report, in which the HSE discusses the increase in work-related stress, depression and anxiety in the UK in recent years, the new lone working guidance calls for employers to pay closer attention to the mental health of lone workers, with support systems in place to ensure that managers keep in close contact with their employees. Employers have a legal duty to support their lone workers and look after their mental health in the workplace by carrying out risk assessments, modifying lone working environments accordingly to ensure that appropriate measures are in place to help keep feelings of isolation, stress and anxiety at bay. This includes the implementation of procedures that allow direct contact between a lone worker and their line manager.

In line with this, the HSE guidance document has also been updated as to how managers should maintain contact with lone workers. Technological advances mean that there is no end to the number of ways in which employers can maintain a strong level of communication and monitor those who are lone working, supervising their workload and checking in with them. Employers should regularly keep in touch via pre-agreed meetings, include lone working employees in social events inside and outside of work, update and consult them on any changes they may be affected by and provide training as and when required.

The final update to the HSE guidance document is how to protect lone workers against the risk of work-related violence. While all employees are technically at risk from violence in the workplace,

concerns regarding the vulnerability of lone workers often arise from the fact that they cannot always call on support to prevent an incident from occurring or immediately notify their employers if one has occurred. Recommended lone working procedures to safeguard employees against the risk of violence include employee training on personal safety and the provision of safety equipment that can be operated manually or automatically to raise the alarm if an incident occurs.

How can SOCOTEC support organisations with lone working health and safety guidelines?

With certain social distancing guidelines set to remain in place for the foreseeable future, it is more important than ever for employers to maintain the health, safety and wellbeing of lone workers during these uncertain times. SOCOTEC's Health & Safety Consultancy team can provide a range of related online training courses on mental health and wellbeing, providing employers and lone working employees alike with guidance and support on such topics as mindfulness, resilience and stress awareness. Additional guidance on protecting worker's wellbeing throughout the COVID-19 pandemic can also be found at: www.socotec.co.uk/news/blog/archive/covid-19-mental-health/.

For further information on how SOCOTEC can support your organisation with health and safety compliance, get in touch here: www.socotec.co.uk/contact-us/

Combustible Dust Hazards: How Safe Is Your Facility?

Combustible dust hazards are being given more attention, thanks to the NFPA 652 mandate that all industrial facilities complete a dust hazard analysis by September 7, 2020. This emphasis on process safety in industries handling combustible dust suggests that a crisis did not exist until recently, when fire and explosion reports across the globe indicate otherwise.

Dust collection systems are the main resource for dust control. There are different types available, including baghouses, cartridge dust collectors, and cyclones. While they can do an effective job of keeping dust hazards under control, they are not a 'set it and forget it' solution. In fact, failure to carry out regular inspections and routine maintenance can significantly increase the risk of a combustible dust incident.

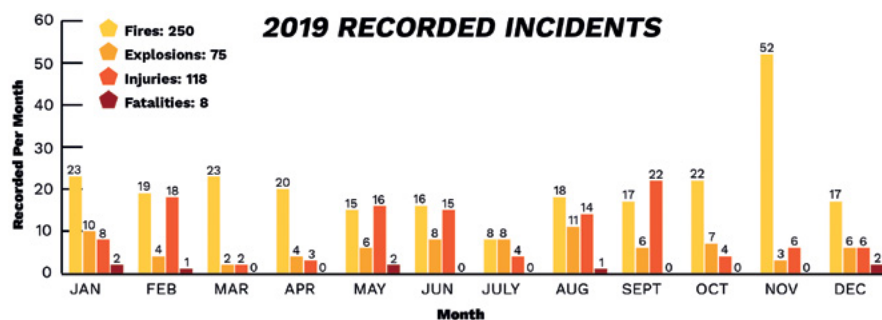


Figure 1: Summary of fires, explosions, injuries and fatalities recorded in the combustible dust incident database at DustSafetyScience.com in 2019.

Dust Safety Science, which has been recording dust-related incidents since 2016, publishes a yearly Combustible Dust Incident Report that reviews loss history, materials and equipment involved, industries affected, and known causes. The 2019 report highlighted the following statistics:

- 87% of fatalities in the incident database were caused by dust explosions.
- 73% of injuries were caused by explosions and 27% by fires
- Four incidents (three in the U.S. and one in Canada) resulted in over one million dollars in losses.
- Food and wood products made up over 65% of the dust fires and explosions. They also resulted in 59% of the injuries and 62% of the fatalities.

If a dust hazard analysis identifies one or more dangerous conditions, NFPA 652 and NFPA 654 provides extensive guidance on how to respond. Recommended measures include:

- Using dust collection systems, filters, and ducting to capture and contain dust
- Minimizing fugitive dust emissions from manufacturing processes
- Regular inspection of false ceilings, joists, and other hidden areas where dust can accumulate
- Housekeeping standards that reduce dust build-up
- Using specially rated cleaning equipment (e.g., vacuum cleaners certified for Class II, Division 2 or Class I-II, Division 1 areas)

Safe operation and maintenance of dust collection systems

According to the Dust Safety Science 2019 report, dust collectors accounted for the highest number of equipment-related incidents last year, with 59 fires and 12 explosions reported. Two incidents cost the facility owners millions in property damage:

- On January 3, a fire started in the dust collector of a lumber yard near Pembroke, Ontario. The unit collapsed onto a hydro transformer and interrupted electrical service in the city. After the fire was put out, hydro crews had to restore power to nearly 3,000 homes in Pembroke. Property damage was estimated to be worth millions of dollars.
- On June 21, a dust explosion at an ethanol plant in Cloverdale, Indiana, injured two truck drivers and caused property damage estimated at \$1 million. Firefighters found a smoldering fire in the dust collector.

The following steps can help keep a dust collector in good working order:

- Ensure that the hopper is free of dust buildup. Any accumulation can clog the system, impact performance, and create a fire or deflagration risk.
- Inspect the ductwork regularly to avoid dust buildup and accumulation.

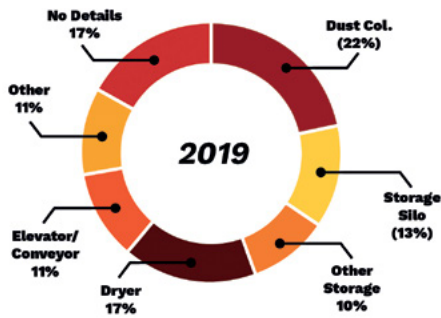


Figure 2: Breakdown of combustible dust incidents recorded in 2019 by the equipment involved.

- Follow NFPA guidelines for dust collector fire, deflagration and explosion protection requirements (e.g., NFPA 652 and NFPA 654).
- Carry out periodic inspections and perform routine maintenance. These preventative measures can keep the dust collector working efficiently and ensure that it continues to function safely and meet EPA outlet emission standards.

	FIRES	EXP.	INJ.	FAT.
DUST COLLECTOR	59	12	9	0
STORAGE SILO	29	13	18	4
OTHER STORAGE	27	7	7	1
ELEV./CONV.	30	5	0	0
DRYER	52	2	4	0
OTHER	19	16	56	3
NO DETAILS	34	20	24	0
TOTAL	250	75	118	8

- Use factory-recommended replacement parts. Lower-priced alternatives may not be compatible with the system and could potentially create a dangerous condition.

According to the NFPA guidelines, dust accumulation of more than 1/32 of an inch (about the thickness of a dime) covering at least 5% of a room's surface poses a significant explosion hazard for many materials. A well-maintained dust collector, combined with a dust hazard analysis completed by a competent and qualified individual, can ensure compliance with NFPA 652

and make industrial facilities everywhere a safer place to work.

About the Authors:

Rose Keefe is the lead technical writer and research specialist at DustEx Research Ltd. (DustSafetyScience.com), an online platform for awareness, education and training to prevent dust fires and explosions in industry applications.

Dr. Chris Cloney (PEng.) is Managing Director at DustEx Research and lead researcher for the Combustible Dust Incident Database. Chris is a recognized expert in the field of combustible dust research publishing over 15 peer-reviewed journal articles and presenting at conferences on the topic around the globe.

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Double filter capacity at a low price: SmartFil sets a new standard in its class

Developed for professional welders and yet affordable for newcomers: The new SmartFil extraction unit from KEMPER sets a new standard in mobile welding fume extraction for regular welding.

Even in the basic version, it is the price/performance winner in its device class. At comparable price level, the SmartFil offers twice the filter surface and thus a significantly longer service life compared with similar systems. An even larger replacement filter and other accessories enable welders to further upgrade the extraction unit. Equipped for the first time with a round filter insert in this device class, KEMPER has also optimised the design to create a more attractive, rounded appearance.

The more different the hazard potential, the more different the necessary welding fume extraction: Which extraction unit is suitable for an individual welding application depends on both the duration of use and the amount of welding fumes produced. "Our SmartFil now provides an extraction unit for a wide range of hazard intensities – and at the best price/performance ratio", emphasises Björn Kemper, CEO of KEMPER GmbH.

Service life twice as long as comparable models

The new extraction unit is available at a comparable price level to other industrial entry-level models but has by far the largest storage filter. At 25 square metres, the filter surface is in some cases twice as large as similar models. This means that even with the basic SmartFil equipment, welders achieve a significantly longer service life compared to conventional models.

And that's not all: Welders can further upgrade the SmartFil with optional accessories if required. The choice for the replacement filter is between the 25 square meter standard filter or a storage filter with a filter surface of 42 square meters that again extends the service life accordingly. In addition, the SmartFil can be optionally equipped with an automatic start/stop system and LED workplace lighting in the extraction hood.

Fit for the future by upgrading with KEMPER innovations

While the optimised design of the extraction hood in the original equipment already makes less tracking necessary, the new KEMPER extraction hood available at the end of the year in the extended version in combination with the new 180 millimeter extraction arm ensures an even higher capture rate. The SmartFil is already designed for these additional accessories: KEMPERbeats, a Bluetooth loudspeaker for playing your own music, an LED strip and the integrated volume flow monitoring also make welding work even safer and more pleasant.

Round instead of square: SmartFil with a new design

KEMPER is also setting new standards in terms of design with the SmartFil. Like many comparable models, the extraction unit is no longer square but round. This is possible because – for the first time in this device class – KEMPER has integrated a round storage filter. As part of the housing, welders can easily remove this SafeChangeFilter from the extraction unit. This means that its disposal is completely contamination free.

Thanks to its mobility and the 360-degree rotating exhaust hood, the compact system can be used flexibly at changing workplaces. Welders gain greater reach by integrating longer extraction arms of up to four meters in a pipe or flexible hose version. The SmartFil filters more than 99.5 percent of alveolar dust particles.

More information at: www.kemper.eu



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