The International Magazine For Hazardous Area Professionals

HAZARDOUS Engineering Solutions

November/December 2026 Issue 89

www.hazeng.com



Also In This Edition:

- ATEX Update – Key changes for industry
- Safety Lighting in Hazardous Areas
- Hydrogen Safety – Managing risk
- Fume & Dust Extraction – Latest solutions
- Metering & Monitoring – Improving safety

ATEX Update | Safety Lighting in Hazardous Areas | Hydrogen Safety | Fume & Dust Extraction | Metering & Monitoring

IECEx

ISO9001 CERTIFIED

c UL us

U.S. Department of Labor MSHA Mine Safety & Health Administration

ANZEx

MIGATRON'S INTRINSICALLY SAFE ULTRASONIC SENSORS



Migatron Corp. offers a full line of Standard Ultrasonic Sensors and

Intrinsically Safe

Contact our Engineering Department

www.migatron.com

info@migatron.com

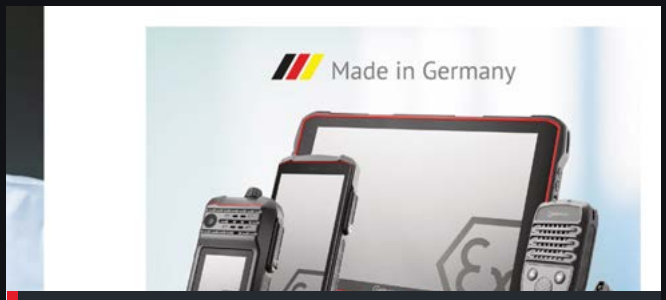
+1-815-338-5800

HAZARDOUS
ENGINEERING SOLUTIONS
MAGAZINE

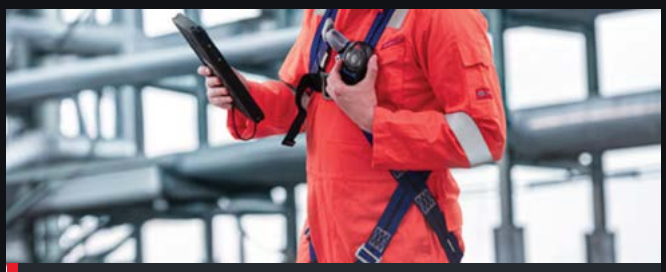
CONTENTS

ISSUE 89
NOVEMBER / DECEMBER 2026

04 MADE IN GERMANY, CONTROLLED IN GERMANY
06–08 INDUSTRIAL DOORS & GAS FLOW MEASUREMENT
10–13 SAFETY SHOWERS, DOORS & LEAK DETECTION
14–15 HAZARDOUS-AREA INDUSTRY NEWS
16–17 ATEX ENCLOSURES | RADIOLEX
19 SMART DEVICES | PEPPERL+FUCHS
20 IEC 60079-42: "F" TYPE OF PROTECTION
21 SAFE DRUM & MATERIAL HANDLING
23 ATEX: WHAT ENGINEERS NEED TO KNOW
24–25 SAFETY LIGHTING
27 METERING & MONITORING
29 DSEAR, FUNCTIONAL SAFETY & ZONING
32–35 EXPLOSION PROTECTION
36–37 FUME & DUST EXTRACTION
38–39 TEMPERATURE MEASUREMENT
40–41 CONTROL & INSTRUMENTATION
42–43 BUYERS GUIDE



04 | i.safe MOBILE


19 | SMART DEVICES


06 | INDUSTRIAL DOORS



15 | HYDROGEN SAFETY

CONNECT WITH US
+44 (0)207 193 1396 | info@hazeng.com
www.hazeng.com

MSL MEDIA LTD
22a Bank Street, Ashford
Kent TN23 1BE, United Kingdom

Made in Germany, controlled in Germany

How i.safe MOBILE customers benefit under NIS2 and the CRA



Martin Haaf, CEO, i.safe MOBILE

i.safe MOBILE



When operators in oil and gas, chemicals or energy choose mobile devices for hazardous areas, explosion protection has always been the first requirement. Today a second requirement is becoming equally important: proof of where a device was made and who controls its software.

Stricter rules

Germany's NIS2 implementation act took effect in December 2025 without a transition period. According to the Federal Office for Information Security (BSI), it increases the number of regulated entities from around 4,500 to an estimated 29,500. They must secure their supply chains, including their relationships with direct suppliers.

The Cyber Resilience Act (CRA) addresses manufacturers directly. Since 11 September 2026, they have had to report actively exploited vulnerabilities and severe incidents within 24 hours. From December 2027, products placed on the EU market must meet the full security-by-design requirements.

A decision with a history

i.safe MOBILE, the global market leader in mobile devices for hazardous areas and critical infrastructure, celebrated its 15th anniversary this year. Its decision to produce in Germany goes back to a European interior ministry that rejected its devices because they were made in China.

Since May 2026, selected devices have been built at the Lauda-Koenigshofen headquarters: the IS540.x smartphone, the IS440.x 5G radio, the IS940.x tablet and the IS-RSM3A.x remote speaker microphone.

Where the "wedding" takes place

At i.safe MOBILE, the production step in which the operating system is flashed onto the hardware is called "the wedding". In Lauda-Koenigshofen, this takes place in the company's own facility, in controlled production areas with role-based physical access. Only firmware that has passed i.safe MOBILE's software quality assurance and release process is approved for flashing.



German production changes three things: the manufacturing location, the supply chain and the degree of direct control over manufacturing. The security architecture of a device, however, is defined by its design. This includes the chipset's security functions such as Secure Boot and a Trusted Execution Environment, the operating system, the firmware and the update mechanism. Where a device type is built both in Germany and in Asia, both versions receive the same approved firmware releases and the same cryptographically signed security updates. For customers whose tenders or risk assessments require a specific country of origin or a controlled supply chain, the German production site makes the difference.

i.safe MOBILE is responsible for firmware specification, software quality assurance and release approval. As is standard for Android devices, the firmware is based on the Android Open Source Project and the chipset manufacturer's platform software, and development partners contribute defined device-specific components.

> *"For critical infrastructure, the decisive question is who controls specification, release and updates of the device software," says CEO Martin Haaf.*

Security on three levels

Organisation: an information security management system (ISMS) based on ISO 27001 covers the entire value chain, with certification in preparation. Supply chain: all relevant suppliers have been audited, providing evidence for customers' NIS2 obligations. Product: development follows CRA requirements, and every device passes a 100% final inspection, wherever it is made.

Where the quality is created

Development, final assembly and quality assurance take place in Germany, and batteries, battery housings and labels already come from German suppliers. As is usual in electronics, chipsets and many other components are sourced from global supply chains.

The benefits for customers

For critical infrastructure operators and public authorities, a verifiable country of origin makes it easier to meet tender requirements. Customers may also audit production on site. In this way, i.safe MOBILE is extending fifteen years of experience in explosion protection to cybersecurity.

All picture credits: i.safe MOBILE GmbH

Always one step ahead!

Intrinsically safe **smartphones, tablets** and **mobile devices** for reliable communication in hazardous areas, critical infrastructure and demanding industrial environments.

Android Enterprise
Silver partner



i.safe MOBILE

ISM_MA0353_261119

STORMY TIMES

How industrial door systems are proving their resilience in an era of more extreme weather

As I write there is total silence says **Chris Dobson.** I look across hedges and fields and nothing moves. Yet the day before we faced Storm Boeio, an amazing storm which closed schools, damaged property, caused death and injury and left tens of thousands of homes without power thanks to its 85mph speed.

How did this deadly storm impact on industry? For comment I turned to Hart Door Systems which has doors installed across the Worid, on every continent indeed.

As a market leader how would its highspeed doors, shutters and screens stand up to such a brutal storm?

"There is no doubt about the violence of the storm and yet we have not been contacted by any clients which is what I would expect." says Hart's chairman, Doug Hart.

Pointing to a very recent contract Mr Hart uses Hart's Typhoon door as a timely example. Delivered for a contract in the Hebrides the Typhoon is rated up to 4Kpa (4,000 pascals) wind resistance clearly more than plenty to withstand the likes of Storm Boeio.

Mr Hart continues. "Extreme wind pressure in a storm is one issue in areas naturally exposed directly to the sea, estuaries, hillsides. However, pressure can be increased by factors due to local topography and adjacent walls and or buildings."

"This can be a result of funnelling of the wind, opening of other doors in buildings and so on bringing an unforeseen pressure risk. The density of the air is another factor that needs to be considered at specification stage."

"Storm Boeio shows, that while a rare phenomenon, doors in locations where storms can be anticipated have to be of the right quality and specification and must comply with relevant safety standards and will efficiently deliver performance for many years to come."

> *"Extreme wind pressure in a storm is one issue, but local topography and adjacent buildings can significantly increase the load."*
>
> **Doug Hart**
> Chairman, Hart Door Systems

AT A GLANCE

Storm Boeio
85mph wind speeds

Typhoon door rating
Up to 4Kpa (4,000 Pa)

Proven in the field
Recent contract in the Hebrides

Built for longevity
Engineered for extreme conditions



Hart's Speedors

4,000 Pa
WIND RESISTANCE

***Chris Dobson** is a journalist and a member of the Society of Editors and a Fellow of the Royal Geographical Society.*

Fluidwell introduces the C571 Flow & Energy Computer

Accurate gas calculations, made easy.



Fluidwell introduces the C571 Flow & Energy Computer, a powerful solution for gas flow measurement and energy monitoring. Combining accurate calculations, broad measurement compatibility and user-friendly operation, the C571 is designed for demanding industrial applications.

Accurate calculations based on recognized standards.

The C571 performs gas calculations according to standards such as AGA8 92DC and SGERG88(91). It determines essential gas properties, including compressibility, density, enthalpy and specific heat, directly within the instrument. This enables mass flow, volumetric flow and power calculations at actual and reference conditions, plus totalization of volume, mass and energy, without external calculation systems.

Flexible integration with diverse gas measurement technologies.

Whether an application uses pulse-generating flowmeters, analog flow signals or differential pressure (dP) measurement, the C571 offers extensive compatibility. It supports common ISO 5167 primary elements, including orifice plates, Venturi tubes and flow nozzles. For demanding dP applications, it can process signals from one, two or three stacked transmitters, extending the measuring range.

The C571 also supports Pt100, Pt500 and Pt1000 temperature sensors, as well as 4-20mA temperature and pressure transmitters.

Designed for demanding industrial applications.

Suitable for natural gas, compressed air, hydrogen, nitrogen, oxygen, carbon dioxide, methane and other gases, the C571 also accommodates custom gas mixtures. User-defined tables for density, compressibility, enthalpy and specific heat enable accurate calculations for virtually any gas composition.

Its robust IP66/IP67 aluminum enclosure combines a clear graphical display, intuitive six-button operation, extensive communication options and integrated data logging. With measurement and calculation updates up to 10 times per second, the C571 delivers accurate, real-time process information.

Discover the C571 | www.fluidwell.com/c571

C 571 Flow & Energy Computer for gases
Your success counts



More functionality.
More flexibility.
Less compromise.

www.fluidwell.com/C571

Hart Door Systems attracts significant increasing interest in its Typhoon doors



Growing demand reflects rising concern over extreme weather, climate change and operational resilience.

Following Hart's recent 20 Typhoon doors order in the Hebrides, Douglas Hart, Hart's chairman, reports significant interest in its Typhoon doors.

"It is clear that there is concern over continuing climate change, certainly the alarming message from the recent United Nations COP 31 which was held in Turkey," says Mr Hart.

He continues: "Doors in exposed positions not only have direct external wind pressure but unforeseen factors such as local topography and adjacent walls and or buildings, can increase wind pressure dramatically, exceeding class 5 standard.

"Note that all pressure testing is static and does not refiect buffeting and gusting effects which is the reason for the safety factor of the design."

He adds: "the heavy-duty construction of each Typhoon fully complies with British and European safety standards and will efficientiy deliver performance for many years to come."

> *"We have increasing demand for this door, not surprisingly with global warming increasing the frequency and velocity of storm events."*

Areas exposed directly to the sea, estuaries, hillsides with increasing elevation are at greater risk to storms. Adjacent buildings can also be a problem whereby they provide a funnelling event exposing an unforeseen pressure risk.

Recent news advising of extreme typhoons in Asia, one such area is Honk Kong where Hart Doors has installed Typhoon shutters on a multi-story data centre in downtown Hong Kong as well as various units at Hong Cong's international airport.

Engineered for Extreme Conditions

With 80 years of experience in industrial roller shutter doors, Hart Door Systems has used its extensive engineering knowledge to design the Typhoon shutter to be strong and long-lasting.

in-house design and testing allow Hart to vary the specification to encompass and comply with other standards, For instance Typhoon can be combined with the security rating LPS1175 to SR3 standard with manual or automatic locking and manual or automatic operation and speed enhancement for the smaller doors sizes perhaps more frequently operated.

Typhoon roller shutter is perfect for delivering security in areas exposed to extreme winds from tropical storms such as hurricanes, typhoons and cyclones. The door curtain profile is available in insulated or non-insulated Steel, stainless steel profiles, optionally galvanised, powder coated or pre-finished plastisol coatings.

Backed by Hart's 80 years' experience in roller shutter door systems, Hart confirms its design and construction of many models deliver suitability for all door openings and with options and specific requirements of interface, automation, speed, safety delivering performance for many years.

Proven in extreme conditions – including installations in Hong Kong.



- EXTREME WIND RESISTANCE
- COMPLIES WITH BRITISH & EUROPEAN STANDARDS
- OPTIONAL LPS1175 SR3 SECURITY RATING
- FLEXIBLE SPECIFICATION & AUTOMATION OPTIONS

HART DOOR SYSTEMS

Visit: www.hartdoors.com

EEMUA

Plan your career development...

Storage Tank Training

Open to all – classroom, live online, in-house, blended, or e-learning

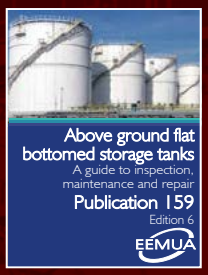
- Gain or renew 5-year certificate
- Competence* courses based on EEMUA 159
- English, Dutch, German and French options
- Full-time/part-time courses with CPD/PDH
- Free or discounted for EEMUA Members
- Courses for each career stage in 2026 and 2027 including:

TankAssessor courses*
25-28 January 2027– in **English** – Live, online

1-4 February 2027 – in **Dutch** – Live, online

12-15 April 2027 – in **German** – Munich, DE

7-10 June 2027 – in **French** – Paris, FR



Tank Integrity Manager course
24-28 May 2027 – in **English**
Amsterdam, NL



TankInspector courses*
8-10 February 2027 – in **English** – Live, online

15-17 February 2027 – in **Dutch** – Live, online

22-24 February 2027 – in **French** – Live, online



TankBasics courses
blended learning, live online
8 February - 19 March 2027 – in **English**

4 April - 28 May 2027– in **Dutch**

Storage Tanks e-learning
On-demand – in **English** or **Dutch**

Also...

EEMUA
Conference 2027
Oxford, UK –
21-22 April 2027



EEMUA More choices, information and registration at **www.eemua.org**

DOORS READY FOR ACTION







British design and manufacture, wide range of models covering high security, large doors with high wind resistance (3,000 to 5,000 pascals), fire and high speed automation with systems' interface.

One stop door shop for new installation and/or repairs and maintenance.

speedor® firebrand
Terror Screen TYPHOON

Globally recognised Hart's high speed doors and shutters deliver options and solutions for industry wherever you are.

Take control of your business environment.
Call 0191 214 0404
info@hartdoors.com

HART
DOOR SYSTEMS
www.hartdoors.com

SAFETY & COMPLIANCE

Are your staff protected in a chemical emergency?



When an emergency happens, every second counts. Safety showers and eyewash stations are critical—but simply having them isn't enough. They must meet specific international standards to be truly effective in protecting your employees.

What are the key standards?

- **ANSI Z358.1 (USA):** Sets strict performance and installation requirements. Units must deliver tepid water (16–38°C), activate in 1 second, and provide a continuous 15-minute flow. Regular weekly testing is also mandated.
- **BS EN 15154 (Europe):** Focuses on emergency body and eye wash equipment, with guidance on placement, flow rates, water temperature, and corrosion resistance. It ensures equipment is suitable for the chemical risks present in the environment.

Whether your facility is working to UKCA, CE, or global standards, it's vital to ensure your emergency equipment is correctly specified, tested, and maintained.

Need Help With Compliance?

We supply fully compliant, high-performance safety showers and eyewash solutions, along with expert advice on installation and servicing.





1500L SELF-CONTAINED TANK SHOWER

MODEL: TS1500

Ideal for any environment and fully compliant with ANSI standards, this tank shower guarantees over 15 minutes of tepid water without the need of a mains water supply. The unit is completely corrosion resistant and suitable for non-hazardous environments. The built in water heater not only controls the water temperature between 18-20°C but also comes with digital water temperature display and water temperature alarm.

All our safety showers are built using stainless steel rather than galvanised steel to ensure your asset has a fit-for-purpose long life.

KEY FEATURES

- 15 minutes tepid water
- Photo-luminous pictorial signs
- Many optional extras available to suit site requirements
- Manufactured in house, in the UK



PORTABLE SELF-CONTAINED SAFETY SHOWER

MODEL: PS1 *(without eye-wash)* **PS1-E** *(with eye-wash)*

Ideal for mobile temporary use. With the high density 250L polyethplene water tank, stainless steel frame and heavy duty wheels, this mobile shower is easy to manoeuvre by one person. The unit will deliver approximately 2-3 minutes of water. An optional insulated jacket or trace heated insulated jacket can be fitted for external use.

KEY FEATURES

- Mobile & temporary use
- Easily manoeuvrable
- Stainless steel frame

Trusted by UK Industry Leaders

We supply a wide range of safety equipment nationwide – whether it's a single unit or a full site solution, our expert team is here to help.

"A picture is worth a thousand words, but a video is worth a thousand pictures."

We have created several videos that showcase our emergency safety equipment and highlight the key benefits of each model. Viewing these is a MUST to ensure you keep up-to-date on the latest safety equipment and how you can keep your workers safe:

Visit www.aqua-safety.com/videos

AQUA SAFETY SHOWERS INTERNATIONAL LTD

Aqua Safety Showers International Ltd

www.aqua-safety.com | sales@aqua-safety.com | +44 (0) 1942 318096

EMERGENCY RESPONSE / PRODUCT FOCUS

SAFETY SHOWERS

Engineering rapid decontamination for industrial hazards

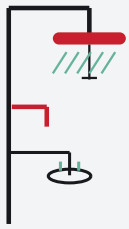
Chemical splashes demand immediate action. Modern emergency showers combine reliable activation, suitable flushing flow, corrosion-resistant construction and, where necessary, temperature-controlled or stored water. Here are three current solutions for different industrial applications.

01 HAWS 8330 AXION

STAINLESS-STEEL COMBINATION SHOWER

An all-stainless-steel shower and eye/face wash for chemical processing, offshore and corrosive environments. Haws specifies 76 L/min shower flow and 14 L/min eyewash flow; AXION technology is designed for simultaneous rinsing.

BEST FOR Chemical plants • Marine • Pharmaceuticals

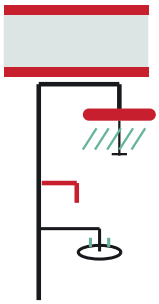


02 HUGHES EXP-MH-14KS/350

HEATED TANK-FED EMERGENCY SHOWER

A 350-litre insulated, immersion-heated tank-fed unit designed for sites with unreliable supply or pressure. Hughes lists a minimum 76 L/min flow and operation in ambient temperatures down to -30°C.

BEST FOR Remote sites • Cold-weather installations

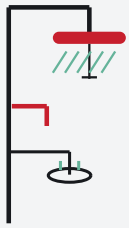


03 SYSBEL WG7053 SERIES

COMBINATION SHOWER & EYEWASH

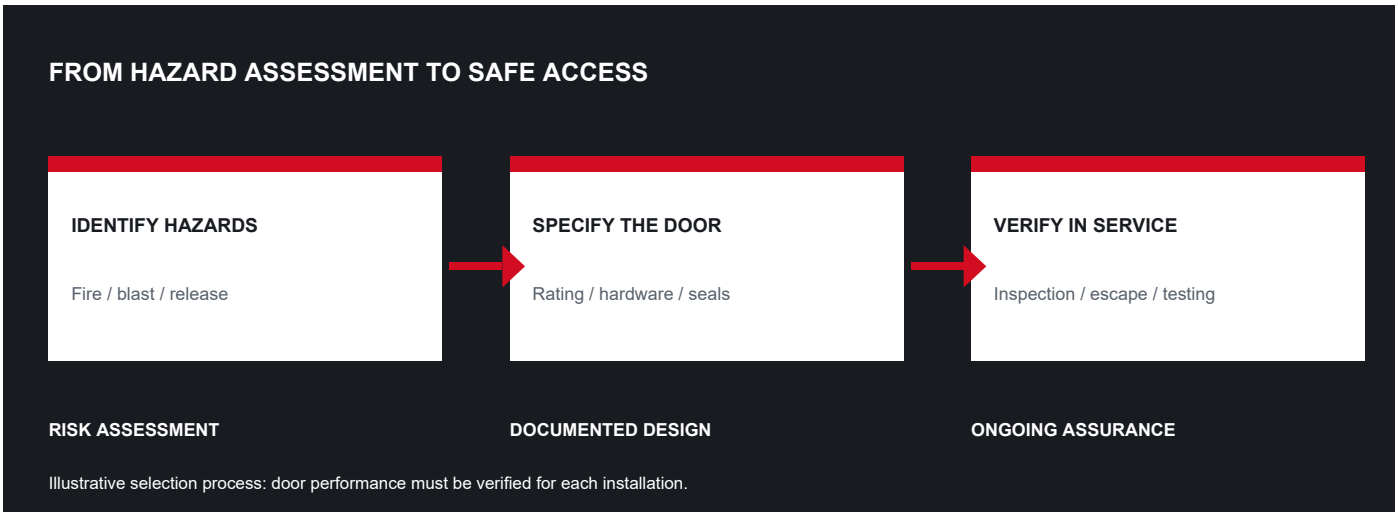
A 2026 combination range with stainless-steel or engineering-plastic variants. Pull-rod, push-handle and foot-treadle activation options support rapid use in chemical handling and manufacturing areas.

BEST FOR Manufacturing • Chemical handling • Laboratories



SAFETY DOORS IN HAZARDOUS ENVIRONMENTS

Specifying the right protection for people, plant and emergency access.



01 START WITH THE HAZARD

Safety doors are not interchangeable. Engineers should assess fire, explosion, chemical release and escape-route risks before specifying a door. The required performance depends on the building, process and credible incident scenarios.

02 FIRE AND SMOKE COMPARTMENTATION

Where fire separation is needed, select a tested door assembly with an appropriate fire-resistance classification, compatible frame, seals and hardware. Installation details and routine inspection are as important as the rating.

03 BLAST AND PRESSURE PERFORMANCE

In facilities with credible explosion overpressure, blast-resistant doors may be required. Design should consider the specified pressure-time loading, anchorage, opening direction and the consequences of structural deformation.

04 HAZARDOUS-AREA SUITABILITY

An ATEX zone does not automatically mean every door needs ATEX certification. Electrical operators, sensors and other equipment capable of ignition must be assessed for the zone and relevant legal requirements.

05 KEEP ESCAPE ROUTES FUNCTIONAL

Personnel doors on emergency routes must permit prompt escape and comply with applicable fire and building requirements. Access control, automatic closers and security features must not obstruct safe evacuation.

06 INSPECT, TEST AND MAINTAIN

Document inspections of hinges, seals, closers, interlocks and powered systems. Repair damage promptly and review the specification after changes to process hazards, surrounding structures or operating conditions.

ENGINEER'S SPECIFICATION CHECK

Hazard assessment | Fire / blast performance | Door assembly certification | Escape and access | Powered equipment suitability | Inspection and maintenance

Precision refrigerant leak detection for a food wholesale and production facility

For cold storage, distribution and food production facilities, *small refrigerant* leaks can remain undetected, contributing to rising operating costs, reduced system efficiency and increased refrigerant replacement requirements.

At a UK wholesale distribution hub and food manufacturing facility, MSA Safety worked with the customer to improve leak detection across its refrigeration infrastructure.



The challenge

The facility operates two refrigeration packs, each containing approximately one tonne of R448A refrigerant. In the previous year, 873 kg had been added to one system, indicating significant ongoing leakage.

The existing detection system used conventional point detectors, with alarm thresholds around 150 ppm. While appropriate for personnel safety under EN 378, this approach was not optimised to detect small, persistent leaks near potential leak sources.

The solution

Following a site survey identifying approximately 40 potential leak points, MSA recommended the Bacharach® Multi-Zone aspirated refrigerant leak detection system.

Using sensitive infrared technology, the system detects concentrations as low as 1 ppm. Three Multi-Zone units, comprising two 16-channel systems and one 8-channel system, provided coverage across all 40 sampling points.

MSA also integrated Protonode gateways and the cloud-based Parasense Enterprise Leak Detection platform, enabling real-time monitoring, alarm management and historical trend analysis.

The outcome

During commissioning, the system detected a previously unnoticed evaporator leak, which was pinpointed using a portable PGM infrared detector.

Since installation, the customer has seen a significant reduction in refrigerant losses, with persistent leaks detected and repaired earlier. Alarm thresholds can be progressively lowered as larger leaks are addressed, supporting the customer's longer-term objective of virtually eliminating refrigerant loss.

Following this success, the customer plans to extend the Multi-Zone solution to its low-temperature ammonia refrigeration system.

MSA® The Safety Company | BACHARACH®

To find out how the MSA Bacharach® Multi-Zone can help your business. Visit:

https://gb.msasafety.com/

EEMUA

Plan your career development...

Mechanical Integrity Training

- Satisfy industry requirements at each competency level – Awareness, Basic application, Practitioner, Leader.
- Covering: *Legislative environment *Industry good practice *Equipment design *Inspection roles, process, reports *Test techniques *Asset condition *ALARP *Operational considerations *Feedback *Operating Limits *Postponement *WSE *Decision Making *User responsibilities, competencies *Responses to findings *Record keeping *Audit *More.
- Certificated up to 5 years – CPD / PDH approved.
- Flexible delivery to suit Learners and companies – Blended, Live online, Classroom, E-learning.
- Courses throughout each year available to all – free or discounted to EEMUA Members and Associates.

EEMUA 231 Mechanical Integrity Basics
– blended, online learning – Basic application competency level – flexible 4 hours of learning per week for 3 weeks 12 hours of CPD – certificated via exam – next course **starts 1 February 2027**.

EEMUA 231 Mechanical Integrity e-learning
– Awareness level – with 1 hour of CPD – **On-demand**.

EEMUA Hydrogen Damage Mechanisms Basics
– blended, live online – for those with at least 1 year of experience – flexible learning 4 hours per week – CPD 21 hours – next course **starts 5 April 2027**.

Mechanical Integrity Practitioner Certificate (MIPC®) – part-time, blended, live online learning – on-site or on-call – 1:1s and Mentor Support – workbook builds from day-1 for immediate on-site application of EEMUA 177, 231 and 232 guidance, and the PSSR ACOP – certificated for 5 years via exam and portfolio assessment – in-depth learning for 27 weeks, flexible 4 hours per week – 110 hours of CPD. Course adapts to engineering needs of each Learner, company and site/s via a 2-hour induction (to fit work schedules) – next scheduled course **starts 18 October 2027**.

EEMUA Conference 2027 – Oxford, UK – **21-22 April 2027**

training@eemua.org +44 (0)20 7488 0801 www.eemua.org

CHEMICALS & HAZARDOUS AREAS

BASF STRENGTHENS HAZARDOUS-AREA SAFETY

BASF
We create chemistry®



How the world's leading chemical company is combining engineering excellence, digital tools and a strong safety culture to manage risk and drive safer, more sustainable operations.

As one of the world's largest chemical producers, BASF operates highly complex facilities across the globe, where the safe management of hazardous areas is critical. From specialty chemicals and plastics to advanced materials, many of BASF's processes involve flammable substances, reactive materials and potentially explosive atmospheres.

A risk-based approach

BASF applies a comprehensive hazardous area management framework, aligned with IEC 60079 and the ATEX Directive, across its global operations. This ensures the correct design, selection, installation and maintenance of electrical and instrumentation equipment in potentially explosive environments.

Digital tools for safer operations

The company is accelerating the use of digital technologies, including real-time monitoring, condition analytics and mobile inspection tools, to identify risks earlier and improve operational reliability. These solutions help teams make faster, evidence-based decisions and reduce exposure to hazardous areas.

People and process safety

At BASF, process safety and people safety go hand in hand. Through continuous training, clear procedures and a strong safety culture, the company empowers its workforce to recognise, manage and mitigate hazards, keeping people, plants and communities safe.



"Hazardous-area safety is fundamental to how we operate at BASF. By combining rigorous engineering standards, digital innovation and the expertise of our people, we are continuously reducing risk and building more resilient and sustainable assets."

Dr. Markus Webber
Head of Process Safety & Operational Risk
BASF



KEY TAKEAWAYS

- **Global standards** – hazardous-area management aligned with IEC 60079 and ATEX.
- **Digital innovation** – real-time monitoring and predictive tools to reduce risk and improve reliability.
- **Safety culture** – investing in people, training and process safety to deliver safe, compliant and sustainable operations.

ExxonMobil ACCELERATES HAZARDOUS-AREA DIGITALISATION

Global energy giant enhances safety, compliance and asset reliability across its refining and chemical operations.



ExxonMobil is expanding the use of digital technologies to strengthen hazardous-area safety and operational performance across its global refining and chemical sites. The initiative focuses on real-time monitoring, predictive maintenance and improved inspection capabilities for Ex-rated equipment.

Smarter, safer operations

By combining data analytics with robust hazardous-area design and compliance, ExxonMobil is enhancing risk visibility, reducing unplanned downtime and supporting safer, more efficient operations in high-hazard environments.

KEY TAKEAWAYS

- **Digital monitoring** – real-time insights for safer hazardous-area operations.
- **Compliance and integrity** – continued alignment with ATEX and IEC 60079.
- **Operational reliability** – reduced risk and improved asset performance.

Air Liquide STRENGTHENS HYDROGEN SAFETY STANDARDS

The industrial gases leader is advancing hazardous-area safety and risk management for its expanding hydrogen infrastructure.



Air Liquide is reinforcing its commitment to safety as it scales up hydrogen production, storage and distribution across Europe. With hydrogen increasingly central to industrial decarbonisation, the company is applying its hazardous-area expertise to ensure safe, compliant and reliable operations.

Risk management by design

The programme includes the application of ATEX and IEC 60079 standards, advanced gas detection, robust ventilation design and rigorous equipment certification, helping to mitigate ignition risks and ensure the safe handling of hydrogen in industrial and energy applications.

KEY TAKEAWAYS

- **Hydrogen safety** – proven hazardous-area practices for H_2 facilities.
- **Standards and compliance** – ATEX and IEC 60079 at the core.
- **Supporting the energy transition** – enabling hydrogen's safe, large-scale use.

Radiolex

ATEX Enclosures: A Tested Foundation for Your Next Product

Developing electrical equipment for explosive atmospheres involves engineering, testing and certification challenges. Pre-tested enclosure components allow manufacturers to focus on application-specific engineering.

TESTED SOLUTIONS, READY FOR INTEGRATION

Radiolex offers three ATEX-certified component ranges:

- **OZ-ATEX** – compact, wall-mounted enclosures
- **RSA-ATEX** – medium-sized, wall-mounted enclosures
- **RSB-ATEX** – large enclosures for floor-standing or wall-mounted installation





- Manufactured from AISI 304 or AISI 316L stainless steel.
- Dimensions from 150 × 150 × 80 mm to 800 × 2000 × 600 mm.
- IP66 ingress protection and an operating temperature range of -40°C to +80°C.
- ATEX and IECEx markings include Ex eb IIC Gb and Ex tb IIIC Db.
- Designs undergo ingress protection, mechanical impact and climatic testing.

Less engineering. Faster development. Lower costs.

Starting with tested components can potentially save up to six or seven months in development time, depending on the application.

As the direct manufacturer, Radiolex can adapt enclosure dimensions, cable-entry arrangements and internal mounting structures to specific equipment layouts, within the approved certification scope.

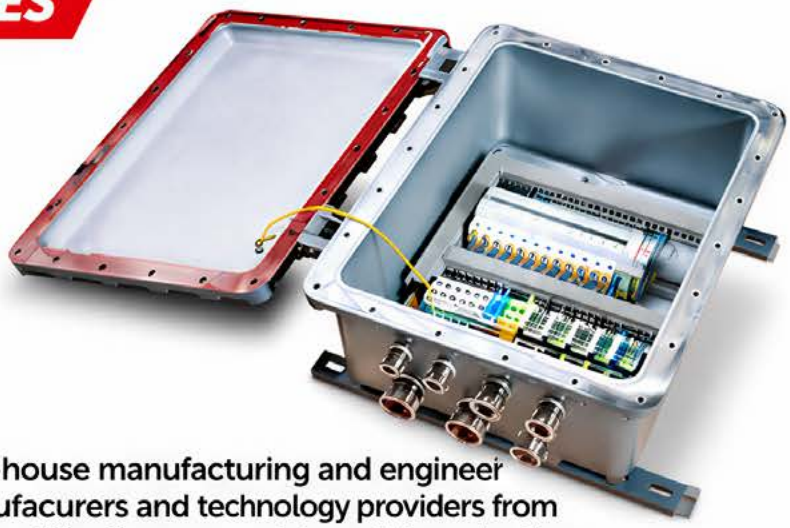
Component certification does not replace the conformity assessment of the completed equipment, including relevant thermal and temperature classification requirements.



MORE THAN ENCLOSURES

Radiolex's experience extends beyond enclosure manufacturing. Completed projects include:

- **RSA-SN-ATEX** – medium-voltage connection boxes up to 6 kV
- **OZ-E-ATEX** – junction boxes
- Customised electrical enclosures incorporating HMI panels



Combining proven enclosure technology, in-house manufacturing and engineer expertise, Radiolex supports equipment manufacurers and technology providers from design adaptation and prototyping through certification support to serial production.

This approach helps companies reduce development risks, accelerate product launches and establish reliable long-term manufacturing partnerships.

Let's Develop Your Next ATEX Product Together

Have a project in mind? Share your requirements with our engineering team and let's explore how we can bring it to life.

radiolex@radiolex.pl | www.radiolex.pl

MENZEL
ELEKTROMOTOREN

MORE THAN
20.000 MOTORS
AVAILABLE FROM STOCK!






24/7
EMERGENCY
SERVICE

CUSTOM
SOLUTIONS
FOR ELECTRIC
MOTORS

SUPPLIER OF LARGE MOTORS FOR ALL DRIVEN EQUIPMENT APPLICATIONS

SQUIRREL CAGE MOTORS | SLIP RING MOTORS | DC MOTORS

Motors up to 25 MW and 13.8 kV
- Low voltage slip-ring and squirrel cage motors up to 3,000 kW
- Medium voltage slip-ring and squirrel cage motors up to 15,000 kW
- Direct current motors up to 2,000 kW
- Frequency converter-proof drives
- In-house load test facility up to 13.800 V, 2.300 kVA, 120 Hz

Customized special designs
- Custom designs for special applications and operating conditions
- Optimized motor design for higher efficiency
- Mechanically and electrically interchangeable motors
- Commissioning worldwide

MENZEL Great Britain Ltd. | UK Branch Office
Martin Rooney | Tel.: +44 1664 500 844
martin.rooney@menzelgb.co.uk

AROUND THE CLOCK,
AGAINST THE CLOCK!

menzel-motors.com

EASA The Electro-Mechanical Authority · AEMT · The PUMP BPMA Industry Association · TÜV SÜD

Critical infrastructure in a challenging environment: Pepperl+Fuchs smart devices transform SK Incheon Petrochem’s field operations



In hazardous industrial environments, reliable and instantaneous communication is vital for mobile worker safety and operational efficiency. To overcome the operational limitations of conventional analog radio equipment, SK Incheon Petrochem implemented an advanced IP-Push-to-Talk (IP-PTT) communication platform integrated with explosion-proof smart devices from Pepperl+Fuchs.

SK Incheon Petrochem is a major South Korean energy and petrochemical producer headquartered in Seohae-gu, Incheon. As part of the SK Group the company maintains operational portfolios in the petroleum and chemical sectors. Its core petroleum division encompasses the refining and supply of gasoline, kerosene, jet fuel, diesel, liquefied petroleum gas (LPG), and marine fuel oil.

Petroleum refining facilities present exceptionally demanding physical environments characterized by high ambient machinery noise, vast physical footprints, and potentially explosive gas atmospheres. Continuous real-time coordination among plant operators, central control rooms, emergency response crews, and mobile workers is essential within the SK Incheon Petrochem refinery to maintain daily operational integrity. For years, field operations relied almost exclusively on conventional analog radio frequency (RF) wireless systems.

However, this legacy RF infrastructure increasingly created operational bottlenecks in the fast-paced refinery environment. Analog RF radios offered limited mobility because devices were bulky and stationary, hindering hands-free tasks for mobile workers moving through complex plant structures. In addition, the aging hardware suffered from declining manufacturer support, persistent audio static, and severe signal attenuation in remote plant zones. Crucially, legacy analog RF technology could not transmit digital data, process photos, or connect with modern enterprise IT tools. The communications infrastructure had to be replaced in order to support workers and ensure smooth and efficient operations.

Mobile workers required a modern system that delivered radio-grade low latency, hands-free usability, certified explosion protection, and zero disruption to ongoing refinery operations, while remaining compatible with existing legacy RF equipment. But when SK Incheon Petrochem initiated its communication modernization drive in June 2025, finding a suitable replacement proved challenging.



A solution for every challenge

After some trial and error, a proof of concept led to the selection of Pepperl+Fuchs intrinsically safe smart devices combined with Gram Mobile’s IP-PTT radio application and SK Telecom’s private LTE (P-LTE) network.

Pepperl+Fuchs supplied several hundred Smart-Ex 03® DZ2 smartphones alongside RSM-Ex 01 BT Bluetooth remote speaker microphones and explosion-protected accessories. The Smart-Ex 03 smartphones hold mandatory South Korean KCs explosion safety certification under the Occupational Safety and Health Act, guaranteeing safe operation in hazardous refinery zones. Designed specifically for rugged industrial environments, the compact devices fit conveniently into work attire pockets, providing mobile workers with continuous availability and physical mobility.

With the Smart-Ex 03, mobile workers also have the option of contacting remote support by phone or video call at any time in the field. The front camera guarantees clear images. The freely programmable side button of the Smart-Ex 03 can be customized for the appropriate application. For example, it can be configured as a push-to-talk or emergency call button so that mobile workers can quickly call for help at their current location in an emergency.

To ensure that the Smart-Ex 03 can always be used optimally, even under adverse conditions, it features a so-called “glove mode”. This mode increases the sensitivity of the touchscreen so it can be operated precisely even when wearing gloves. Thanks to the double-tap feature, the device can be locked by simply double-tapping on the home screen. This eliminates the need to feel for the on/off button on the side, which can be a challenge when wearing gloves. In addition, both left- and right-handed workers benefit from this feature.

To solve the severe background noise of active refinery units, the solution incorporates advanced AI noise cancellation and automatic volume control, delivering clear voice transmissions that outperform legacy RF radios. Coupled with RSM-Ex 01 BT Bluetooth microphones, field operators can communicate hands-free while carrying out complex maintenance tasks.

Seamless interoperability between legacy analog technology and the new IP-PTT network was a key demand for SK Incheon Petrochem that was achieved through Radio over IP (ROIP) gateways, dispatcher PCs, and dedicated PTT servers. This hybrid architecture allows field engineers using Smart-Ex 03 devices over LTE to talk directly to personnel equipped with conventional RF radios, ensuring uninterrupted site-wide communication. Furthermore, the Smart-Ex 03 platform carries Android Enterprise Recommended certification and Google Silver Partnership, assuring SK Incheon Petrochem of long-term OS and security updates until 2032 as well as centralized IT management.

Efficient and flexible in field operations

The transition has changed daily field workflows significantly. Workers are now able to exchange instant voice messages, share photos, transmit field data, and access remote technical support directly from hazardous plant areas. SK Incheon Petrochem and Pepperl+Fuchs are considering further project expansions, including the introduction of next-generation Remote Speaker Microphones (RSM-Ex), additional specialized explosion-proof accessories, and continuous software enhancements to scale IP-PTT services across broader operational units.

The successful implementation of Pepperl+Fuchs mobile devices and IP-PTT infrastructure has fully satisfied SK Incheon Petrochem's technical and operational objectives. Modernizing the communications infrastructure has eliminated coverage blind spots, dramatically improved voice clarity through AI noise cancellation, and established a secure foundation for enterprise digital transformation and digital twin applications. The project shows how explosion-protected smart devices can reliably replace legacy radio hardware while driving comprehensive digital transformation.

About Pepperl+Fuchs

As one of the leading companies in the automation industry, Pepperl+Fuchs is considered a pioneer in its markets worldwide with groundbreaking technologies. For conventional and future applications, the company based in Mannheim, Germany, offers a comprehensive portfolio for factory automation and for the process industry. At the same time, Pepperl+Fuchs is constantly advancing pioneering technologies and thus paving the way for its customers to meet the coming challenges of Industry 4.0.

The Evolution of Explosion Protection: IEC 60079-42

and the New “f” Type of Protection



The global explosion protection industry is entering a new stage of technological development. For decades, safety has relied mainly on proven passive protection methods, such as flameproof enclosures, known as Ex d, and increased safety, known as Ex e. These methods remain essential, but modern industrial environments are becoming more digital, automated, and complex.

Smart equipment, advanced control systems, and dynamic production processes create risks that may change during operation. in some applications, passive barriers alone are no longer sufficient to achieve the required level of protection. This is where IEC 60079-42 becomes strategically important.

The final draft of IEC 60079-42, formerly known as IEC TS 60079-42:2019, introduces a new type of protection: "f", or Electrical Safety Devices. This represents an important shift in explosion protection philosophy, moving from purely structural protection toward active, function-based safety.

A New Approach to Explosion Protection

The “f” type of protection introduces a functional safety approach to ignition source control. Instead of relying only on physical barriers, it allows safety devices to monitor equipment, detect dangerous conditions, and bring the system into a safe state before an ignition source becomes effective.

in this concept, the equipment under control, referred to as ExEUC, and the safety device operate together as an integrated safety system. This provides a more intelligent and responsive method of explosion protection, especially for complex electrical and electronic equipment used in hazardous areas.

How the “f” Type of Protection Works

The main purpose of an “f” protection system is to identify a developing ignition risk at an early stage and prevent it from becoming hazardous.

This function may be performed by sensors, logic solvers, programmable controliers, or other electronic safety systems. For example, a temperature sensor may detect abnormal heating, while a controller may process the signal and initiate shutdown or another predefined safe action.

This makes the “f” type of protection especially relevant for modern industrial equipment, where risks are often dynamic, process-dependent, and closely connected to automation systems.



Technical Flexibility and Functional Safety

One of the strengths of IEC 60079-42 is its fiexibility. The standard distinguishes between simple safety devices, such as temperature sensors, and more complex devices based on programmable electronics.

It also creates a methodological link with functional safety standards such as IEC 61508 and IEC 61511. A key element is Ignition Hazard Assessment, or IHA. During this assessment, residual ignition sources are identified and evaluated, and the required Risk Reduction Factor, or RRF, is determined for each remaining risk. This ensures that the safety function is based on a structured risk reduction process.



Scope of Application

IEC 60079-42 focuses on active ignition source management through electrical safety devices. it does not apply to gas detection systems, fire suppression or explosion mitigation systems, mechanical safety devices, ventiiation systems, or inerting systems.

This clear scope positions the "f" type of protection as a dedicated method for controlling ignition risks, not as a universal replacement for other explosion protection techniques.

Conclusion

IEC 60079-42 does not replace existing IEC 60079 standards. instead, it complements them by introducing a recognized framework for active electronic safety functions.

The new "f" type of protection gives Ex-equipment manufacturers and industrial safety engineers greater design flexibility. it helps achieve the required Equipment Protection Levels, or EPL, where traditional passive methods may be insufficient. in practical terms, IEC 60079-42 brings explosion protection closer to modem industrial automation. it supports safer, smarter, and more adaptable equipment for hazardous areas and represents a logical step toward a new generation of intelligent and reliable expiosion protection systems.

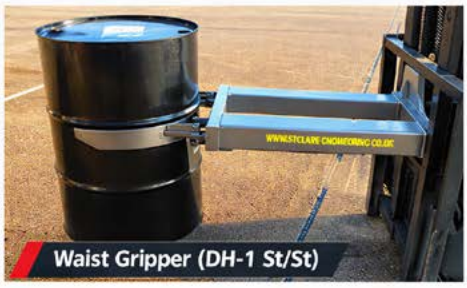
Visit: www.danem-test.com

ST CLARE ENGINEERING
MATERIALS HANDLING SOLUTIONS

ATEX

Safe & Efficient Drum Handling In Hazardous Areas


Single Drum Handler (1-DLR-P-St/St)


Waist Gripper (DH-1 St/St)


Drum Rotator (SC10-St/St)

Do you have a need to lift or move drums, de-palletise or just generally move drums around a workshop or factory site in Hazardous Areas?

The St Clare Engineering range of Grab-O-Matic ATEX fork attachment and pedestrian drum handlers will provide a safe and efficient solution for you.

The popular and versatile Grab-O-Matic DLR range of rim grip fork attachment drum handlers are suitable for all types of steel drums, plastic 'L' ring drums and most fibre drums.

The extensive range includes the SC10 for lifting and rotating drums to dispense the contents, scissor grabs, base gripping units and waist grippers. Units can also be fitted to pedestrian stackers for confined spaces and areas where fork trucks are banned. Bespoke units can be manufactured to suit customer specification.

Our Stainless Steel/ATEX Product Range Includes:

- Drum Handling Attachments *(Rim and Waist Gripping)*
- Drum Rotation Units *(Fork Mounted and Crane Siung)*
- Drum Cages
- Self Dumping Hoppers
- Pedestrian Drum Rotators
- Pedestrian Drum Carriers
- Pallet & Stacker Trucks
- Scissor Grab Drum Handler

We also supply Drum Cages for off-shore use, Whiskey/Wine Barrel Base Grippers for the drinks industry and a Quick Attach/Release drum handler for ATEX hazardous areas.

All Grab-O-Matic models can be Quick Attach/Release units, securely attached to the forks and released without the need for the truck driver to dismount, saving time and increasing safety. Drum handlers can be manufactured in full or part stainless steel to suit requirements and spark-proof areas.

- **All Grab-O-Matic fork attachments are issued with Test Certificates, CE marked and manufactured entirely in the UK to ISO 9001:2015 and will be certified for use in ATEX spark proof areas.**

CE | ISO 9001:2015 CERTIFIED | MANUFACTURED IN THE UK

St Clare Engineering Ltd (Grab-O-Matic)

For more information on our extensive range of drum and materials handling equipment, please contact **Andy Bow** *on* **02380 643402** *or email* **sales@stclare-engineering.co.uk**


Single Drum Handler (1-DLR-P-St/St)


Waist Gripper (DH-1 St/St)


Drum Rotator (SC10-St/St)

Drum & Material Handling Equipment

Handle your drums Safely, Simply & Efficiently with the Grab-O-Matic Range of Stainless Steel /ATEX Drum Handling Equipment

Our Stainless Steel/ATEX Product Range Includes:

- **Drum Handling Attachments** (Rim and Waist Gripping)
- **Drum Rotation Units** (Fork Mounted and Crane Slung)
- **Drum Cages**
- **Self Dumping Hoppers**
- **Pedestrian Drum Rotators**
- **Pedestrian Drum Carriers**
- **Pallet & Stacker Trucks**
- **Scissor Grab Drum Handler**

St Clare Engineering Ltd (Grab-O-Matic)

Unit 1, Brookwood Industrial Estate, Brookwood Avenue, Eastleigh, Hampshire SO50 9EY

Tel: 02380 643402 Fax: 02380 642189 Email: sales@stclare-engineering.co.uk Web: www.stclare-engineering.co.uk

ANYWHERE IN THE WORLD

Keep machinery running smoothly even in ZONE 0.



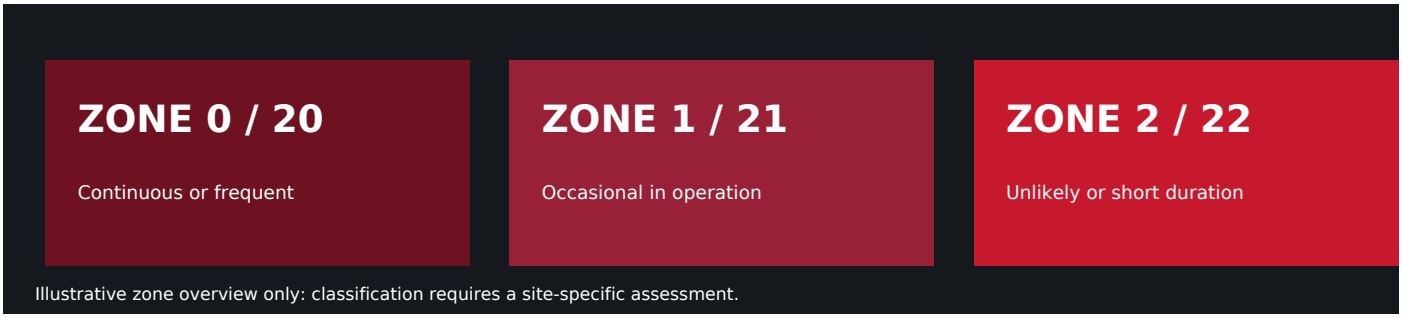
- **Scaleable EX range for hazardous zones**– from handheld vibration analysers to advanced CBM systems, including ZONE 0.
- **Rugged and reliable**– IP67-rated designs built to survive dust, water, and harsh industrial conditions.
- **Comprehensive monitoring**– long-lasting batteries and versatile sensors ensure continuous detection of vibration, bearing wear, and temperature changes

REQUEST A DEMO

Contact Us
01293 530196
tpieurope.com

ATEX: WHAT ENGINEERS NEED TO KNOW IN 2026

Updated guidance, product marking and hazardous-area duties across GB and the EU



ATEX remains central to explosion protection, but engineers must distinguish legal obligations from new guidance. In Great Britain, DSEAR governs workplace explosion risks while the 2016 Equipment and Protective Systems Regulations govern products placed on the GB market.

01 JANUARY 2026: EU GUIDANCE

The European Commission published the sixth edition of its ATEX Directive 2014/34/EU guidelines in January 2026. This updates interpretive guidance; it does not replace the Directive. Engineers supplying EU projects should check conformity routes, product scope, documentation and notified-body requirements.

02 SEPTEMBER 2026: GB UPDATE

Updated UK government guidance explains how the 2016 EPS Regulations apply in Great Britain. CE marking continues to be recognised indefinitely for qualifying products, alongside UKCA. The correct route depends on the conformity assessment body and destination market.

03 DSEAR IS STILL THE FOUNDATION

Employers must assess dangerous substances, prevent or control explosive atmospheres, classify hazardous zones and select suitable equipment. Changes to processes, ventilation, dust handling or substances should trigger a review of the risk assessment and area classification.

04 CHECK THE COMPLETE Ex MARKING

A CE or UKCA logo alone does not establish suitability for a hazardous zone. Verify the equipment group and category, gas or dust designation, protection concept, temperature class or maximum surface temperature, ambient range and any special conditions of use.

05 DESIGN, INSTALL, MAINTAIN

Confirm equipment selection against the zone assessment and applicable standards. Record inspection and maintenance, manage repairs and substitutions, and reassess modifications that could alter ignition risks. Competence and traceable technical records are essential.

06 CROSS-BORDER PROCUREMENT

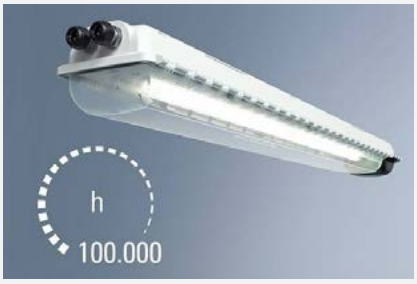
For EU/EEA supply, CE marking and EU conformity requirements apply. Northern Ireland follows distinct arrangements. For GB imports from the EEA or Switzerland, temporary importer-address labelling easements run until 31 December 2027.

ENGINEERING CHECKLIST

Verify zoning • Match Ex equipment to the hazard • Check certificates and conditions • Record inspections • Reassess modifications

LIGHTING THE HAZARD

LED lighting for hazardous areas, emergency response and industrial inspection.



01 / EMERGENCY LIGHTING

R. STAHL | EXLUX PRO 6009

LED emergency lighting designed for demanding industrial and potentially explosive atmospheres. Confirm the specified emergency duration, Ex approval and monitoring options for the selected version.

r-stahl.com | EXLUX PRO



02 / TEMPORARY AREA LIGHTING

WOLF SAFETY | PORTABLE AREA LIGHT

High-output portable LED lighting for industrial maintenance and temporary work areas. Check the exact model designation, zone approvals and power arrangements before use.

wolfsafety.com | Area lighting



03 / INDUSTRIAL FLOODLIGHTING

HAZARDOUS-AREA LED FLOODLIGHT

Wide-area LED illumination for process plants and engineering operations. Confirm the manufacturer, product variant, Ex marking and mounting requirements before specifying.

Product identification to be confirmed



04 / INSPECTION & MAINTENANCE

R. STAHL | HAND LAMP

Portable inspection lighting for maintenance tasks in challenging environments. Select equipment using its exact certificate, gas or dust group and temperature rating.

r-stahl.com | Portable lighting

THE RIGHT LIGHT FOR THE JOB

Choose lighting by task, environment and hazardous-area classification - not brightness alone.

PROCESS PLANTS

Fixed Ex-rated LED luminaires

For routine access and walkways. Verify zone, ingress protection and ambient rating.

TEMPORARY WORK

Portable Ex-rated area lights

For shutdowns and maintenance. Control power leads, placement and charging.

CLOSE INSPECTION

Certified hand lamps

For vessel and equipment checks. Confined-space permits and gas testing still apply.

COMBUSTIBLE DUST

Dust-rated Ex fittings

Match dust zone, group and surface temperature; minimise dust deposits.

ESCAPE ROUTES

Emergency luminaires

Provide suitable backup lighting and test to the site emergency plan.

SPECIFICATION CHECK

Confirm the applicable Ex certification, zone, gas or dust group, temperature class, ambient range and maintenance access.



FREEDOM

The Instinct of Detection



GP

THE ULTIMATE VERSATILITY

Xi

EXCELLENCE IN ACTION



XP

SECURITY BUILT INTO EVERY DETAIL





THE NEW GENERATION OF GAS DETECTORS

Designed to meet the long-term needs of industrial users, the **FREEDOM** line is based on a common, scalable architecture that simplifies installation, operation, and maintenance.

With its three models - GP, XP, and Xi - it allows you to choose the level of performance and features suited for each application, while offering a solution capable of evolving with your needs and technologies.

DISCOVER

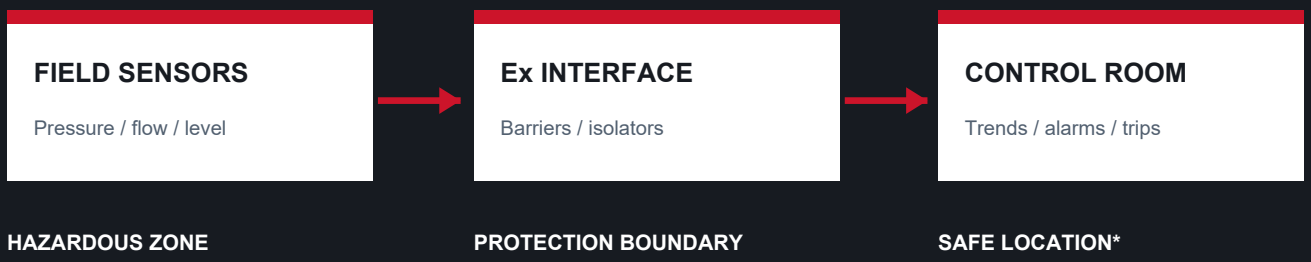
Now unveiled.
See it live.

TELEDYNE
Gas and Flame Detection

METERING & MONITORING IN HAZARDOUS AREAS

Reliable measurements are essential - but instruments must not become ignition sources.

FROM FIELD MEASUREMENT TO SAFE ACTION



*Architecture is illustrative; equipment location and protection must follow the site assessment.

01 MEASURE THE PROCESS

Pressure, flow, level and temperature instruments help engineers detect abnormal conditions before they escalate. Selection must consider process compatibility, measurement range, response time and the hazardous-area classification.

02 SELECT SUITABLE Ex EQUIPMENT

Check the full equipment marking, including group, category or EPL, gas or dust group, temperature class and ambient limits. Intrinsically safe circuits require verified barrier, cable and device parameters - not simply an Ex label.

03 GAS DETECTION THAT WORKS

Fixed and portable gas monitoring should address credible release points, airflow, sensor limitations and alarm response. A detector only adds protection when its location, maintenance and response arrangements are effective.

04 MONITOR THE WHOLE SYSTEM

Bring instrument diagnostics, calibration status and trend data into a controlled monitoring strategy. Detect drift, blocked impulse lines, sensor fouling and communications faults before the measurement becomes misleading.

05 DESIGN FOR SAFE RESPONSE

Alarms need defined operator actions and sensible priorities. Where automatic shutdown is required, specify independence, reliability, proof testing and functional-safety requirements through a documented risk assessment.

06 MAINTAIN THE SAFETY CASE

Record inspections, calibration, bump tests where applicable, modifications and any bypasses. Reassess instrument suitability whenever process conditions, hazardous-area zoning or the substances handled change.

ENGINEER'S FIELD CHECK

Zone and substance | Ex marking and certificate conditions | Sensor placement | Calibration and proof-test intervals | Alarm response | Change control

TECHNICAL REFERENCES: HSE DSEAR / ATEX; HSE gas detection guidance; HSA intrinsic safety guidance.

NMi | ExVeritas®

The Explosive Atmosphere Experts

Accredited expertise across every stage of hazardous area compliance



Product Certification

Complete product testing and certification for ATEX, IECEx, Electrical Safety and IECEE to support market access worldwide.

Management Systems Certification

Combined ATEX (QAN) and IECEx (QAR) quality audits, ISO 9001, ISO 14001 and IECEx FAR audits.

Specialist Training

Industry-recognised CompEx and bespoke ATEX training (Intrinsically Safe) and DSEAR risk assessments.

Site Safety

End-to-end DSEAR compliance support—from hazard analysis through to full on-site inspection and verification.

Contact us now to discover why customers choose NMi ExVeritas - backed by the expertise and global reach of NMi Group

www.exveritas.com

info@exveritas.com

Scan to learn more

DANAK

CompEx Approved Training Provider

UKAS TESTING

UKAS PRODUCT CERTIFICATION

UKAS MANAGEMENT SYSTEMS

IEC IECEE IECEx



Hazardous Area Risk Assessments That Work:

Aligning DSEAR, Functional Safety and Zoning

Hazardous area classification is an important part of managing explosion risk, but zoning alone does not demonstrate that risk is adequately controlled.

A robust hazardous area risk assessment needs to consider the wider requirements of Dangerous Substances and Explosive Atmospheres Regulations (DSEAR), alongside the protective functions that help prevent or mitigate credible accident scenarios.

DSEAR, FUNCTIONAL SAFETY AND ZONING

Hazardous area zoning identifies where explosive atmospheres may occur and defines the requirements for equipment operating within them, but on its own does not ensure that the risk of an explosion is adequately controlled.

Functional safety complements zoning by ensuring that protective systems, such as gas detection, automated isolation, interlocks and venting/relief systems, operate reliably before or after a hazardous event occurs.

Functional safety requirements, including the required Safety Integrity Level (SIL), are derived from risk assessment (considering the likelihood and consequence of an event and reliability of each safeguard), rather than inferred from zone classification alone. By integrating all three disciplines, operations can justify their equipment selection, specify appropriate protective functions and demonstrate that the overall explosion risk is adequately controlled under DSEAR.

WHERE ASSESSMENTS CAN FALL SHORT

- **Area classification:** Over- or under-zoning, incorrect equipment specifications (equipment category, gas or dust group, temperature class).
- **DSEAR:** Poor housekeeping, insufficient explosibility/flammability data, limited understanding of electrostatic hazards, inadequate explosion protection, poor management of change (MoC).
- **Functional safety:** Detection systems with poorly defined responses and set points, inadequate final elements (fail safety systems, bypass safeguard/inhibited), alarm management, insufficient proof testing and maintenance.

THE COST OF OVER-ZONING

Although zoning is a principle important element in ATEX DSEAR assessment, there is a risk of inflating the cost if classification errors are made during the zoning process. A relevant example to highlight is the powder blender and the avoidance of flammable atmospheres.

A powder blending unit mixing metal powder used a nitrogen inerting system with oxygen monitoring. This was previously assigned a Zone 22 but has the potential for being a non-hazardous/negligible extent if the inerting is suitable, reliable and safe, such as ensuring oxygen levels (flammable atmospheres) are within the powder's Maximum Permissible Oxygen Concentration (MPOC). Typically, two out of five variables should be present to ensure an inert atmosphere (flow, pressure, vacuum, time or oxygen analysis).

Assessing the level of integrity required for the inerting system can be complex, but should be considered by initially conducting a Layer of Protection Analysis (LOPA) study. This may then require a detailed Safety Integrity Level (SIL) determination assessment (functional safety) of the hazard scenario. It may be necessary to consider what the effect of a power failure would be.

If there is a reliable inerting system with monitoring and interlocks, the hazardous zone within the blending unit can be made less onerous from a Zone 22 to a non-hazardous/negligible extent internal zone. This is a clear example of how functional safety can align with area classification and DSEAR to reduce the cost of compliance.

IMPORTANCE OF AN INTEGRATED ASSESSMENT

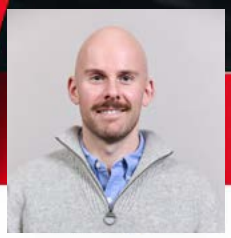
The case illustrates why hazardous area classification should not be considered in isolation.

Effective risk management depends on understanding where explosive atmospheres may occur, controlling the conditions that can lead to their formation and ensuring that protective systems perform when demanded.

Bringing DSEAR, zoning and functional safety together can help operators reach decisions that are both technically justified and practical to implement.



Protecting the people and shipbuilding capabilities that underpin national resilience



Author: Tom Pearson,
Breathing Systems and Engineered Solutions Marketing Manager at Dräger

Shipbuilding is one of the most complex and hazardous industrial environments in the construction and engineering sectors, bringing together heavy engineering, coatings work, electrical installation and other specialist tasks, often within tight, confined spaces. Workers may face multiple risks at once, from hot work (welding and cutting) and working at height to heavy lifting operations, airborne contaminants, poor visibility, loud noise and rapidly changing atmospheric conditions.

But in environments like these, safety isn't only a workforce issue. it's a national resilience issue; shipbuilding underpins both the revenue the UK relies on and the naval capability that defends it. The ability to protect people, maintain control in high-risk environments and respond effectively when something goes wrong all feed into operational continuity under pressure. That's why shipbuilding is such a clear example of national resilience in practice: prevention, preparedness, response and recovery, backed by the right planning, training and life-critical protection.

EXPOSURE

As well as the very visible risks, shipyard workers may also be exposed to a variety of airborne hazards, including fumes, dust and combustion gases. Extended exposure can contribute to respiratory iliness, so it is essential that the workplace has effective ventiiation solutions alongside gas monitoring. and respiratory protection.

For safety professionals, ensuring compliance with occupational exposure limits and respiratory protection requirements is a critical component of shipyard safety management.

To further complicate matters, these activities ofien have to be undertaken in wet, or humid conditions, with limited visibility. So, not only do the workers have to deal with these conditions, but they are also doing so in limited, confined spaces, in which the atmosphere can change rapidly.

RISK MANAGEMENT

The sheer scale and layout of the structures involved also means that, if an emergency does occur, getting access to the injured can be significantly more complicated than on many other industrial sites. For example, access routes are limited, which increases the importance of atmospheric monitoring, permit-to-work systems, rescue planning and the best PPE, rescue and safety technology. Workers must have a clear picture of what to do in the event of an emergency – know the escape routes and have access to – and trust – the safety equipment at their disposal.

Therefore, planning and evacuation procedures take on even greater significance. Respiratory protection, gas detection and emergency escape equipment play a critical role within this framework, particularly where engineering controls alone cannot eliminate exposure risks.

Managing these risks requires a comprehensive safety strategy to ensure preparedness and prevention of risks, combining engineering controls, procedural safeguards, and appropriate gas detection and personal protective equipment (PPE), inciuding respiratory protective equipment (RPE).

PROTECTIVE EQUIPMENT

While engineering and administrative controls should always form the first line of defence, PPE plays an essential role where exposure risks remain. Due to the airborne hazards present, from vapours to dust and fumes, respiratory protection for the workforce should be an important element of safety planning.

A thorough assessment of the airborne hazards that examines the variables, such as concentration levels and duration of exposure, can help to ensure that the mitigations and preventative measures are appropriate. This must be supported by training, tested maintenance procedures and fit testing of equipment.

LEADING TECHNOLOGY

The tasks being completed by workers will require a variety of gas detection, PPE and safety technology. Shipyard activities generate a range of airborne contaminants that require appropriate filtration.

For example, air-purifying respirators and full-face masks are often used during welding, grinding, and surface preparation. Equipment, such as the Drüger X-plore 8000 powered air-purifying respirator (PAPR) system, can provide a consistent supply of filtered air while reducing breathing resistance during physically demanding work.

In more complex environments, where a consistent, long-duration source of clean air is critical, conventional fiiter systems may not provide enough protection for the level of contaminants in the environment. Airborne particles such as dust, aerosols or fine fibres go beyond their limits, and that's where enhanced protection is needed using airline, or suppiied-air respiratory systems, such as Dräger's PAS Airpack 1 with PAS X-plore airline beit manifold.

Some environments demand self-contained breathing apparatus (SCBA), such as tanks or other enciosed spaces where oxygen ieveis may be low. The Dräger PAS Colt provides short-duration respiratory protection while letting workers move freely, and can work in conjunction with airline systems, disconnecting instantly in an emergency to double as an escape set.

EMERGENCY ESCAPE PREPAREDNESS

As well as managing day-to-day risks, it is important to consider the equipment required for emergency situations. During shipbuilding operations, emergencies can arise in extreme conditions. including high heat and intense physical exertion, so respiratory protection equipment must perform reliably in those environments while still being comfortable for the user. SCBA originally designed for firefighting environments, such as the Dräger PSS 4000, can provide durability and comfort during the most demanding of emergency rescue conditions.

Similarly, where atmospherie conditions can deteriorate quickly, emergency escape devices are an important safeguard. These devices should be staged at entry points or carried by standby personnel, providing workers with a simple and intuitive means of escape during an emergency. it is vitally important that these tools and equipment allow for rapid evacuation from the tightest of spaces.

TRAINING

it's not simply enough to have access to the equipment – training is vital. And it must be integrated effectively across the business and teams, to ensure the entire workforce know how to use the equipment. Regular training sessions are critical to ensure workers feel confident in using equipment correctly and respond effectively during emergency situations.

Heaith and safety teams must also regularly assess the workplace and keep up-to-date with the latest regulations and requirements, as well as reviewing the latest equipment and safety solutions.

Managing safety risks in shipbuilding is about far more than compliance alone. By combining respiratory protection, atmospheric monitoring. escape readiness, training and technical support, organisations can strengthen their ability not only to protect workers, but to keep vital operations functioning under pressure and recover faster when incidents occur.

element



SAFETY IN EVERY LOCATION

Ensure your products comply with global explosive atmosphere testing regulations, including IECEx, ATEX, UKEX, HazLoc, and DSEAR. Element's world-class testing laboratories provide end-to-end support, technical guidance, and cutting-edge testing solutions, helping manufacturers achieve certification efficiently and confidently.

From product design to global market access, our global network of local experts ensures safety, reliability, and regulatory compliance across a range of industries:

Petrochemical | Oil and Gas | Mining | Food processing | Aircraft refuelling Pharmaceuticals | Hydrogen

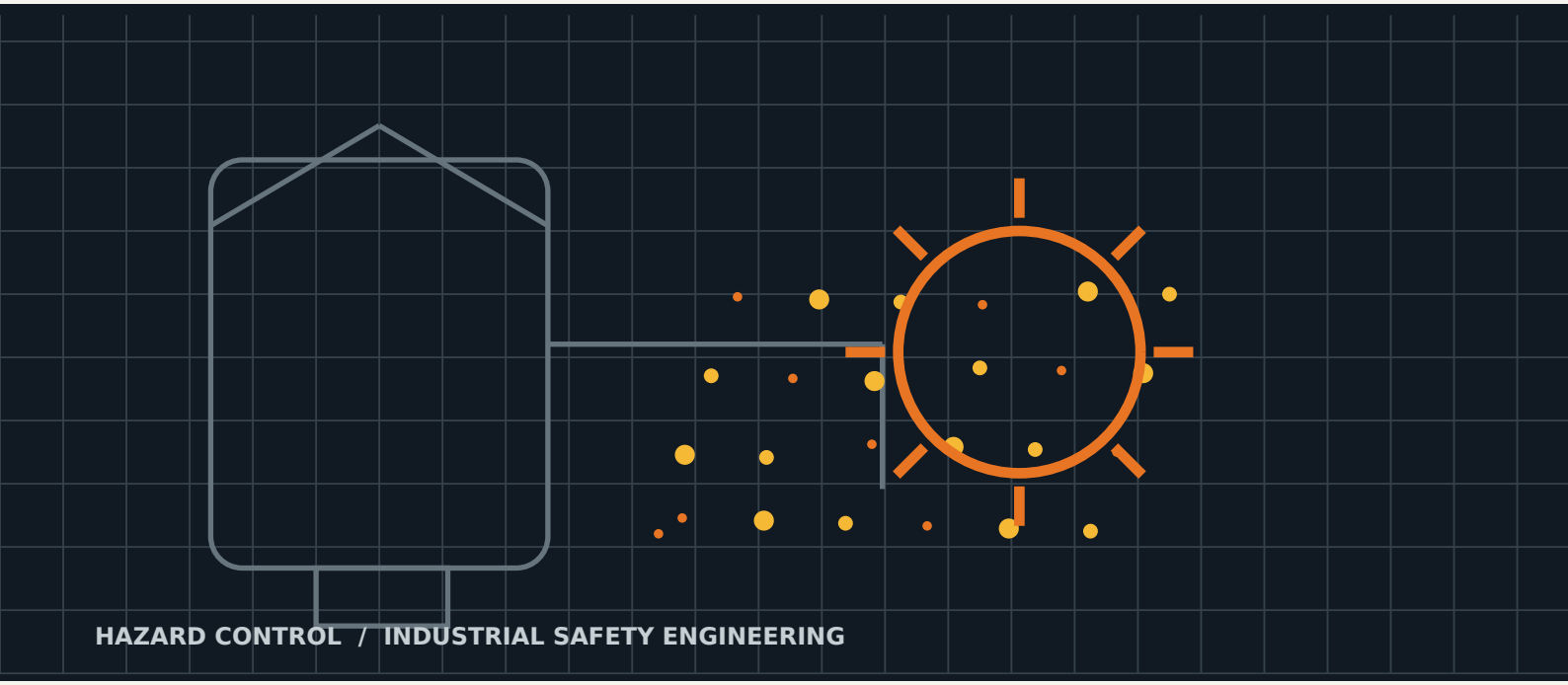
Get started at element.com

Making tomorrow **safer than today.**

CONNECTED TECHNOLOGIES

EXPLOSION PROTECTION

PART 1 OF 4



HAZARD CONTROL / INDUSTRIAL SAFETY ENGINEERING

EXPLOSION PROTECTION

ENGINEERING SAFER INDUSTRIAL ENVIRONMENTS

RELEASE + AIR + IGNITION = EXPLOSION POTENTIAL

A HAZARD THAT DEMANDS DESIGN

Explosive atmospheres can arise wherever flammable gases, vapours, mists or combustible dusts mix with air. A release alone does not guarantee an explosion: a suitable concentration and an effective ignition source must also coincide. Effective protection therefore begins with understanding the process, the substances handled and the ways containment can fail.

IDENTIFY THE SCENARIOS

A structured assessment considers normal operation, start-up, shutdown, cleaning and foreseeable malfunctions. Sources of release may include pump seals, filling points, vents, filters and transfer connections. Dust deposits deserve particular attention because they can be disturbed and form a hazardous cloud.

CONTROL THE THREE ELEMENTS

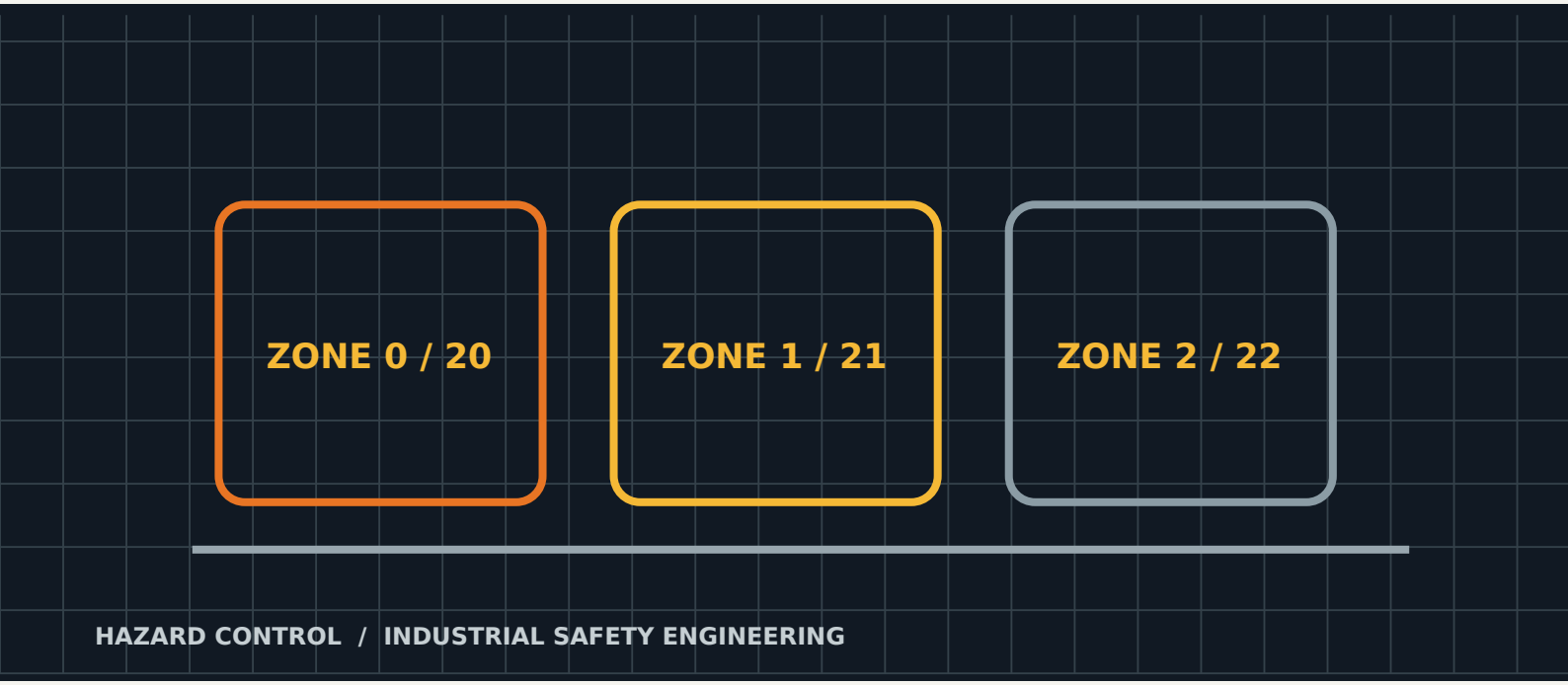
Prevention is strongest when controls are layered. Reduce or contain releases, limit accumulation through appropriate ventilation and housekeeping, and prevent ignition from electrical equipment, hot surfaces, static discharge, friction and mechanical sparks. Where an explosion remains credible, engineered mitigation must limit its consequences.

FROM ASSESSMENT TO ACTION

The outcome should be a documented basis for zoning, equipment selection, operating procedures and inspection. Revisit it whenever the process, material, ventilation or layout changes. A credible safety case links each identified hazard to a specific, verifiable control.

EXPLOSION PROTECTION

PART 2 OF 4



ATEX & HAZARDOUS AREAS

SELECTING EQUIPMENT FOR THE ZONE

ZONE 0 / 20 • ZONE 1 / 21 • ZONE 2 / 22

ZONING IS THE STARTING POINT

Hazardous-area classification reflects how frequently an explosive atmosphere is expected and how long it may persist. For gases and vapours, Zones 0, 1 and 2 are used; for combustible dusts, Zones 20, 21 and 22. Classification is based on the release characteristics, ventilation and relevant process conditions—not simply the presence of a flammable substance.

INSTALLATION MATTERS

Cable entries, glands, enclosures, earthing, bonding and seals are integral to the protection concept. Incorrect substitutions or modifications can invalidate the intended protection. Mechanical equipment also requires assessment: bearings, couplings, belts and moving components can create ignition hazards.

MATCH EQUIPMENT TO THE HAZARD

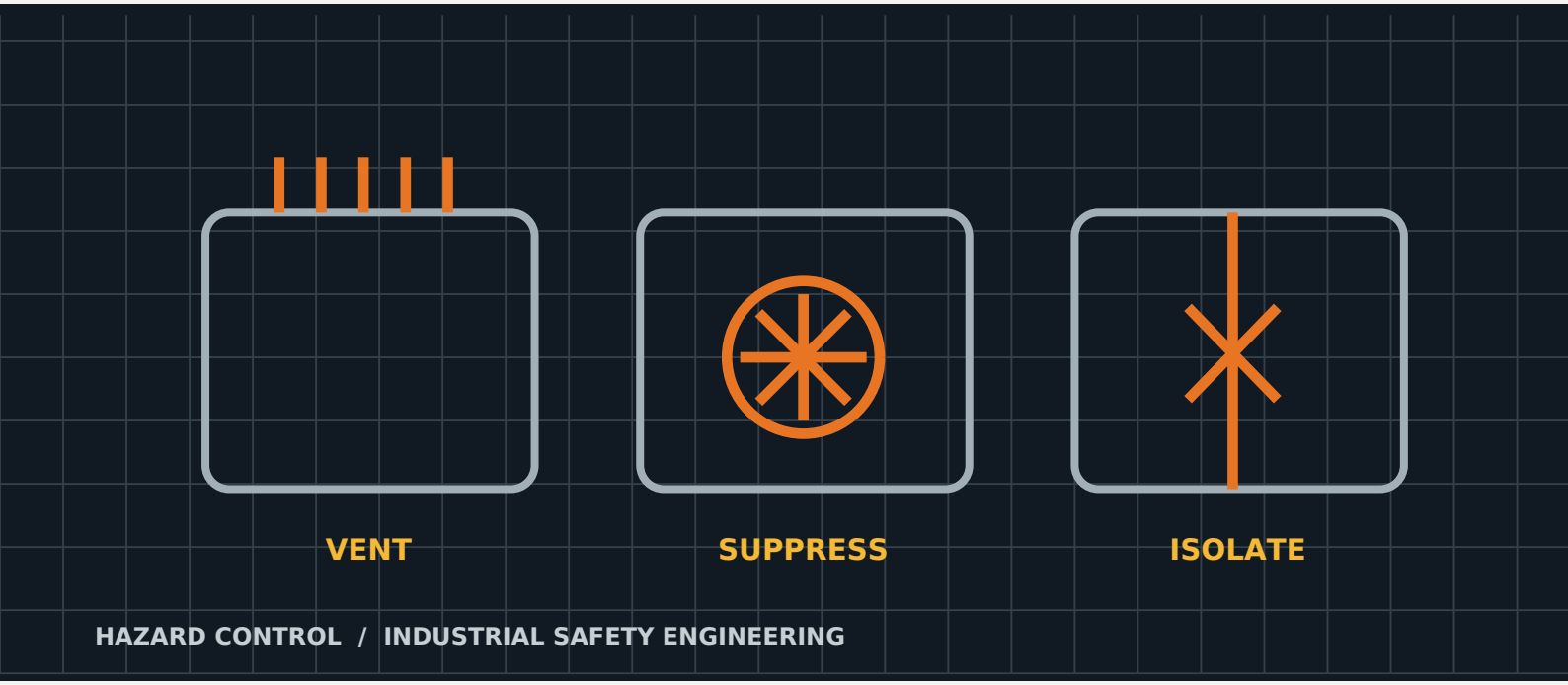
Equipment must be suitable for the zone and the specific atmosphere. Consider equipment group and category or equipment protection level, gas or dust group, temperature class or maximum surface temperature, ambient conditions and any special conditions of use. A marking alone is not a substitute for reviewing the certificate and installation instructions.

DOCUMENT THE DECISION

Maintain area-classification drawings, equipment schedules, certificates, inspection records and change-control evidence. UK dutyholders should apply the relevant DSEAR requirements; ATEX product requirements and applicable standards inform the selection of equipment.

EXPLOSION PROTECTION

PART 3 OF 4



HAZARD CONTROL / INDUSTRIAL SAFETY ENGINEERING

ENGINEERED PROTECTION

CONTAIN, ISOLATE AND RELIEVE

VENTING / SUPPRESSION / ISOLATION

WHEN PREVENTION IS NOT ENOUGH

Even robust prevention cannot eliminate every credible failure. Explosion protection systems are designed to reduce pressure, flame propagation and escalation. Selection must be based on the actual material, vessel strength, process geometry and credible explosion severity, with specialist engineering and validation.

VENTING AND FLAMELESS VENTING

Explosion vents provide a designed path for pressure relief, commonly on dust-handling equipment. Safe discharge locations and exclusion zones are essential. Flameless venting devices can be considered where conventional outdoor venting is impractical, but require application-specific assessment of heat, pressure and installation constraints.

SUPPRESSION AND ISOLATION

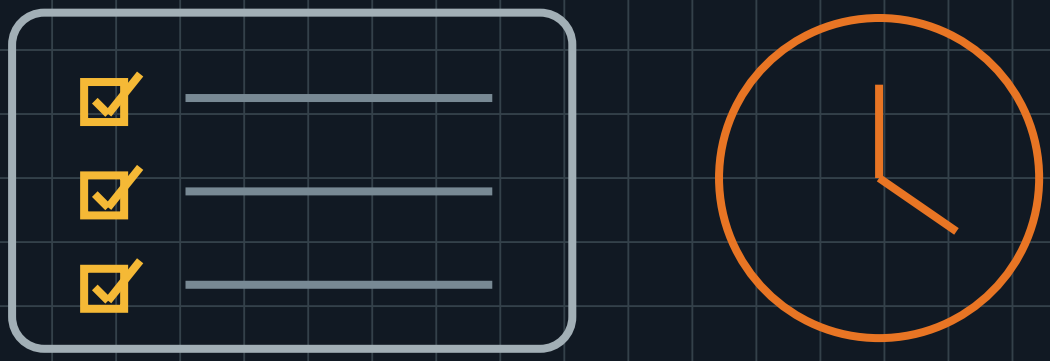
Suppression systems detect an incipient event and discharge an extinguishing agent rapidly enough to limit pressure development. Isolation devices aim to stop flame and pressure propagation through connected ducts or pipes. Detection, response time, spacing, maintenance and system compatibility determine performance.

DESIGN AS A COMPLETE SYSTEM

A protected vessel may still transmit an explosion into connected plant unless isolation is provided. Review filters, silos, dryers, conveyors and interconnected equipment as a system. The chosen strategy should be verified against relevant standards and the manufacturer’s documented application limits.

EXPLOSION PROTECTION

PART 4 OF 4



HAZARD CONTROL / INDUSTRIAL SAFETY ENGINEERING

OPERATIONAL ASSURANCE

KEEPING PROTECTION EFFECTIVE

ASSESS → SELECT → INSPECT → IMPROVE

PROTECTION MUST SURVIVE REALITY

A compliant design can degrade through corrosion, vibration, contamination, accidental damage or undocumented alterations. Inspection and maintenance turn the design intent into sustained protection. The programme should reflect equipment type, environmental severity, manufacturer guidance and risk.

CONTROL WORK AND MODIFICATION

Maintenance itself can introduce ignition sources. Apply appropriate permits, isolation, gas testing and safe systems of work. Temporary equipment, portable devices and replacement components must be assessed for hazardous-area suitability. Changes to process throughput, materials or extraction can alter the original risk assumptions.

CHECK THE CRITICAL DETAILS

Inspect enclosure integrity, fasteners, cable glands, seals, bonding, earthing and signs of overheating. Verify ventilation performance and clear dust accumulation safely. For protection systems, check detectors, actuators, pressure devices, isolation mechanisms and any prescribed replacement intervals.

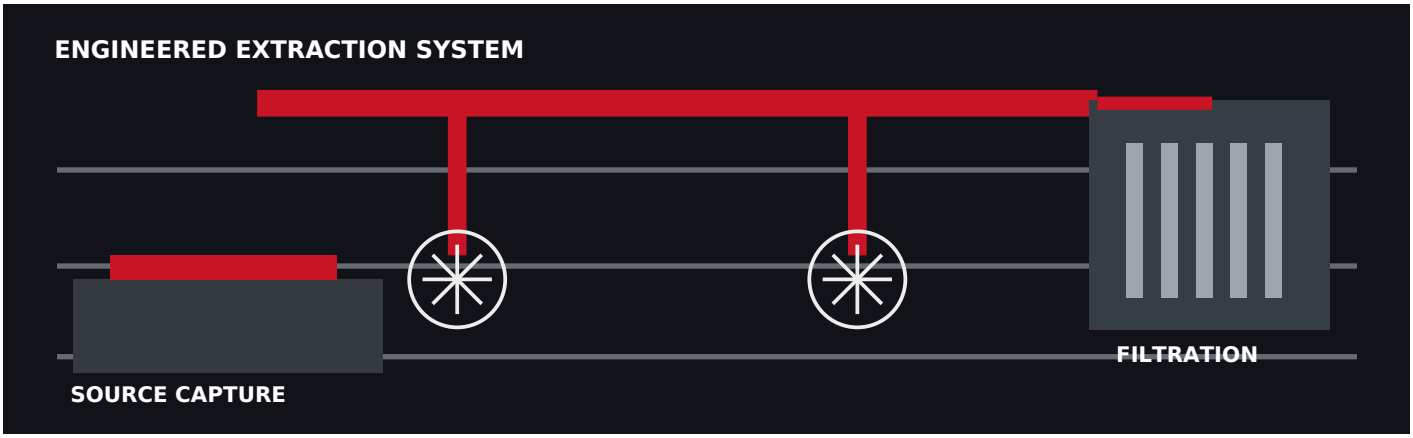
BUILD A LEARNING LOOP

Record defects, prioritise corrective actions and verify closure. Use inspections, near misses and process deviations to review the risk assessment. Competence matters: personnel should understand the protection concept they are inspecting, not merely complete a generic checklist.

01 / OCCUPATIONAL EXPOSURE

FUME EXTRACTION

Controlling welding fumes, process vapours and airborne contaminants at the point of generation.



CAPTURE AT SOURCE

Welding, thermal cutting, soldering and chemical processing can release hazardous airborne substances. Local exhaust ventilation (LEV) is designed to intercept contaminants before they disperse into the breathing zone. Effective systems combine a suitable hood, correctly sized ductwork, an air mover, filtration or discharge arrangements, and a means of checking performance.

MATCH THE HOOD TO THE TASK

On-torch extraction, movable capture arms, downdraught benches and enclosed extraction booths each suit different processes. Hood positioning is critical: excessive distance, cross-draughts or an obstructed capture path can sharply reduce effectiveness. The design should account for the process, contaminant, operator movement and workpiece geometry.

ENGINEERING THE AIRFLOW

An LEV system must maintain adequate capture and transport velocities without excessive noise or energy demand. Poor duct routing, damaged flexibles and overloaded filters can reduce flow. Variable-speed fans may improve efficiency, but only where controls maintain the minimum effective extraction duty.

VERIFICATION AND WORKER PROTECTION

In Great Britain, COSHH generally requires LEV thorough examination and testing at least every 14 months, with shorter intervals for some processes. Commissioning data, routine airflow indicators, operator checks and maintenance records help demonstrate that the system remains effective. Respiratory protective equipment may still be necessary where extraction alone cannot adequately control exposure.

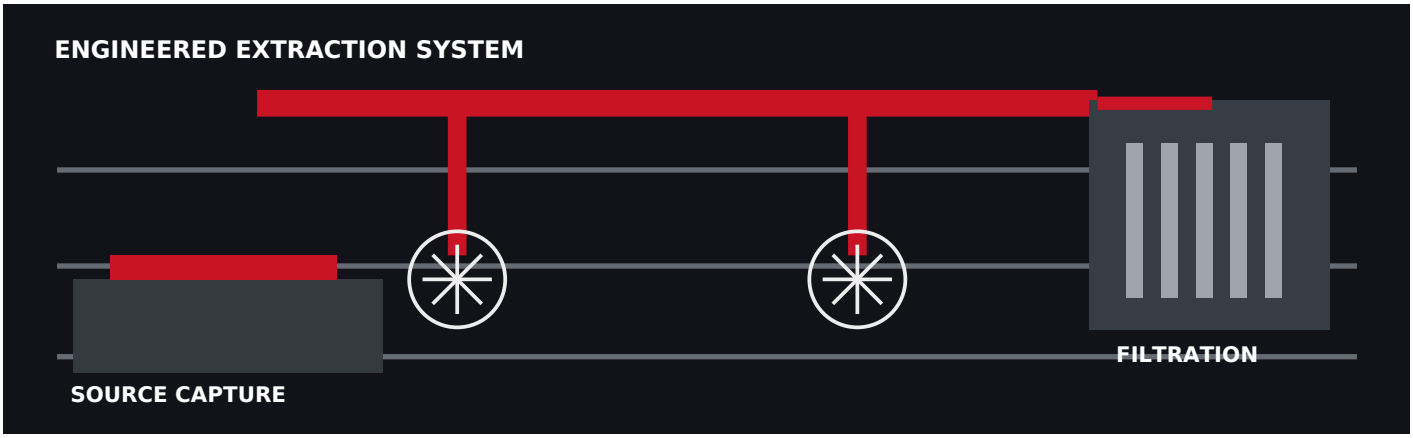
DESIGN PRIORITY

Capture contaminants as close to the source as practicable; verify actual performance under normal operating conditions.

02 / COMBUSTIBLE DUST

DUST EXTRACTION

Reducing airborne particulate exposure while managing fire and explosion risks in industrial dust collection.



MORE THAN A HOUSEKEEPING ISSUE

Woodworking, food production, pharmaceuticals, metals processing and bulk materials handling can generate fine dust. Inhalation may present occupational health risks; certain dusts can also form explosive atmospheres when dispersed in air at sufficient concentration. Settled deposits may become airborne again during cleaning or an initial incident.

CAPTURE AND CONTAIN

Effective extraction begins with enclosure and source capture at cutting heads, transfer points, conveyors and filling stations. Ducts, hoppers and filters should be designed for the actual dust properties, loading and process conditions. Dust accumulation inside the system is itself a maintenance and safety concern.

EXPLOSION PROTECTION BY DESIGN

Where combustible dust hazards exist, a documented assessment should consider ignition sources, hazardous-area classification, electrostatic charging and suitable equipment. Depending on the risk, engineered measures may include explosion venting, suppression, isolation, spark detection and safe discharge locations. Protection systems must be designed as a coordinated whole.

KEEP SYSTEMS DEPENDABLE

Differential-pressure monitoring, filter integrity checks, safe dust disposal and inspection of ductwork help sustain performance. Avoid using compressed air to disperse settled dust. Under UK DSEAR, employers must assess and control dangerous-substance fire and explosion risks; ATEX-related equipment requirements may also apply.

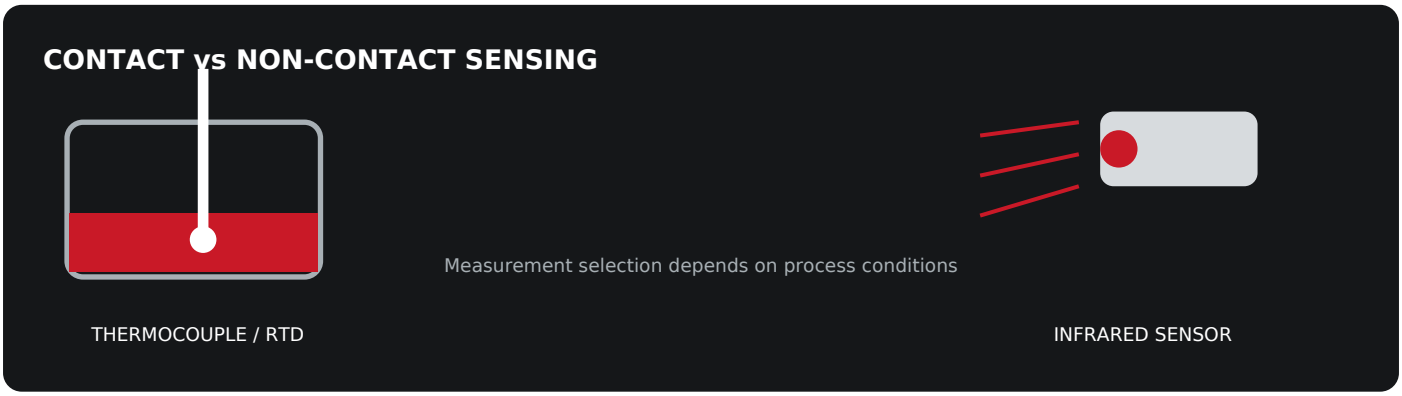
CRITICAL DISTINCTION

A dust collector that controls exposure is not automatically explosion-safe. Assess both occupational hygiene and combustible-dust hazards.

INSTRUMENTATION AND PROCESS CONTROL

TEMPERATURE MEASUREMENT

Choosing the right sensing technology is essential for accurate process control, equipment protection and reliable operation across demanding industrial environments.



Contact measurement

Thermocouples generate a voltage from dissimilar metals and are widely used in furnaces, exhaust systems and high-temperature processes. Selection must account for temperature range, sheath material, response time and drift.

Resistance temperature detectors (RTDs), commonly Pt100 or Pt1000, offer strong accuracy and repeatability over many industrial ranges. Their performance depends on correct wiring, installation depth and calibration.

Installation determines accuracy

A correctly specified sensor can still deliver poor data if it is mounted in a stagnant pocket, exposed to unwanted heat conduction or installed with inadequate immersion. Thermowells protect sensors but introduce response-time and mechanical-design considerations.

Non-contact measurement

Infrared pyrometers measure emitted thermal radiation without touching the target. They are useful for moving materials, inaccessible surfaces and high-temperature production lines.

Results depend on emissivity, reflected radiation, field of view, sighting geometry and atmospheric interference. Dust, steam and dirty optics can distort readings; operators should verify the measurement setup against the actual target.

Practical selection checklist

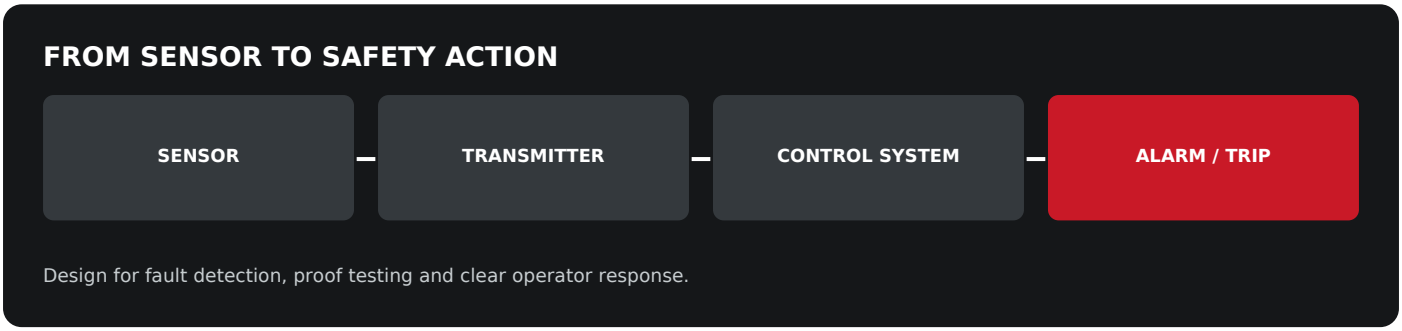
- Operating range and required uncertainty
- Response time and process dynamics
- Corrosion, vibration and mechanical loading
- Calibration access and traceability
- Signal integrity and diagnostic coverage

ENGINEERING NOTE Temperature data is only as trustworthy as the complete measurement chain: sensor, installation, transmitter, wiring, calibration and control-system configuration.

HAZARDOUS AREA MONITORING

TEMPERATURE AS A SAFETY INDICATOR

In potentially explosive atmospheres, temperature monitoring helps identify abnormal conditions before they escalate—provided the instrument, installation and response strategy are engineered for the hazard.



ATEX and equipment selection

Temperature instruments installed in classified areas must be suitable for the relevant zone, gas or dust group, equipment protection level and ambient conditions. The applicable certification and installation requirements should be verified for the complete assembly—not only the sensing element.

Surface-temperature limits are critical. A device that functions correctly electrically may still create an ignition risk if its maximum surface temperature is unsuitable for the surrounding atmosphere.

Thermal imaging in maintenance

Infrared surveys can reveal overheating bearings, overloaded electrical connections, poor insulation and abnormal process heating. Trending against a defined baseline is often more useful than a single thermal image.

Combustible dust and hot surfaces

Dust deposits can insulate equipment, restrict cooling and create localised hotspots. Monitoring should be paired with effective housekeeping, appropriate dust extraction and inspection of motors, conveyors, dryers and other potential ignition sources.

Where runaway reactions, frictional heating or self-heating are credible, alarm and shutdown setpoints should reflect the documented risk assessment rather than arbitrary temperature thresholds.

Turning readings into protection

Effective systems define sensor location, alarm priorities, response time, fault behaviour and the actions operators must take. Safety-related functions may require independent protection layers and formal verification.

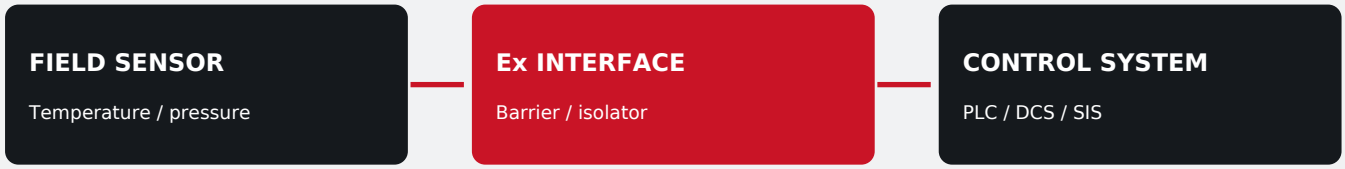
Routine calibration, proof testing where applicable, trend review and management of change help ensure monitoring remains dependable throughout equipment life.

SAFETY NOTE Temperature monitoring supports explosion-risk reduction but does not replace hazardous-area classification, ignition-source control, preventive maintenance or properly designed explosion protection.

TECHNOLOGY AND SELECTION

Control in hazardous areas

Reliable measurement begins with the correct protection concept.



Conceptual signal chain: verify the certified installation details for each hazardous-area boundary.

Measure at the source

Control systems depend on trustworthy field data. Pressure transmitters, temperature probes, level instruments and flowmeters can all be located where flammable gas, vapour or dust may occur. Instrument selection must address the process duty and the classified location, not merely measurement range.

Start with area classification

The site hazardous-area classification identifies the zone, gas or dust group and temperature constraints. Match these requirements to the equipment marking, protection concept and certificate conditions. A device suitable for one zone or atmosphere is not automatically suitable for another.

Intrinsic safety interfaces

Intrinsically safe (Ex i) loops limit electrical energy available to ignite an atmosphere under defined fault conditions. Assess the complete loop: field apparatus, associated apparatus, cable parameters, earthing and segregation. Barriers or galvanic isolators do not make an arbitrary field device intrinsically safe.

Protection is system-wide

Other protection concepts, including flameproof enclosures (Ex d) and increased safety (Ex e), may be appropriate to specific equipment and installations. Cable entries, glands, seals and enclosure integrity must remain consistent with certification and installation instructions.

Design for useful data

Consider accuracy, response time, drift, diagnostics, environmental exposure and maintainability. Corrosion, vibration, condensation and sensor fouling can degrade performance long before a device fails completely. Use alarms for actionable conditions and avoid excessive nuisance trips.

Commissioning checks

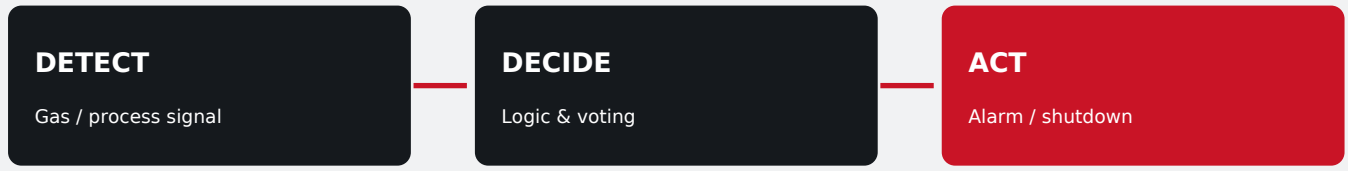
Before energisation, verify identification, device markings, loop drawings, wiring, polarity, segregation, calibration and alarm setpoints. Document the as-built configuration and any certificate-specific conditions of use. Inspection should follow applicable hazardous-area requirements, including IEC/EN 60079-14 and -17 where relevant.

EDITORIAL TAKEAWAY | Certification, installation and maintenance must align.

SAFETY AND LIFECYCLE

Instrumentation that protects

From gas detection to functional safety and long-term assurance.



Illustrative protective function; the safety lifecycle defines the actual architecture and proof tests.

Detection as an early warning

Fixed gas detectors, oxygen monitors and temperature instruments can identify developing hazards. Detector positioning depends on release scenarios, ventilation, gas behaviour, obstructions and access. Coverage should be justified by a site-specific assessment rather than a uniform spacing rule.

Alarms and shutdowns

A measurement may feed a basic process control system, an independent alarm or a safety instrumented function. Define which layer is credited for risk reduction. A safety instrumented system requires appropriate hazard assessment, specification, design, verification and lifecycle management.

Functional safety discipline

IEC 61511 provides a framework for safety instrumented systems in the process industries. Where a SIL target is assigned, the complete safety function—including sensor, logic solver and final element—must be assessed. A SIL claim for one component alone does not establish the integrity of the entire function.

Keep the final element in view

A reliable sensor is of limited value if a shutdown valve cannot close or an actuator lacks its required utilities. Test the complete response path, including annunciation, voting logic, bypasses, solenoids and final elements, to the extent required by the safety plan.

Inspection and proof testing

Routine calibration and proof testing serve different purposes. Calibration checks measurement performance; proof tests seek dangerous failures that normal diagnostics may not reveal. Set intervals from the approved safety requirements and failure assumptions, and record results, impairments and corrective actions.

Manage change carefully

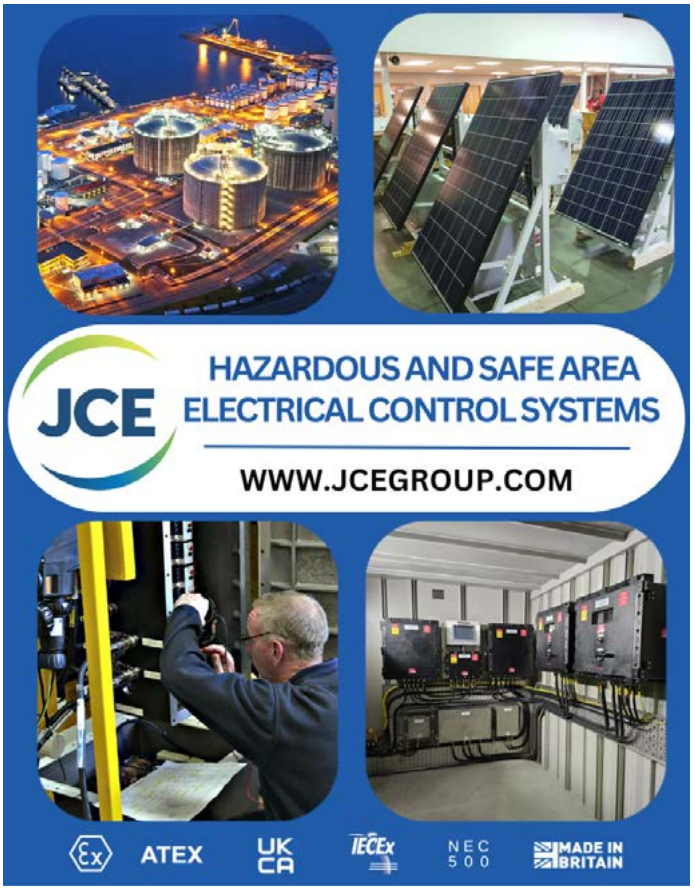
Firmware updates, altered alarm limits, relocated detectors and replacement instruments can change risk. Apply formal management of change, keep drawings current and verify compatibility with hazardous-area certification. Train technicians on permit-to-work, isolation and safe access before intervention.

EDITORIAL TAKEAWAY | A protective function is only as strong as its weakest element.



Rotech End of Shaft or belt driven units are used for monitoring:
- Stop/slip
- Underspeed/overspeed
- Interlocking/sequencing
- Distance/direction
- Rotation control
- Belt weighers

KEEP ON RUNNING WITH ROTECH



HART
DOOR SYSTEMS

Doors Ready for Action



speedor® firebrand
Terror Screen TYPHOON

Globally recognised Hart's high speed doors and shutters deliver options and solutions for industry wherever you are.

Call 0191 214 0404 | info@hartdoors.com
www.hartdoors.com

SBES

Your 1st Call For Emergency Alarms LIFE SAVER

- Lone Worker Alarm Systems TRACER
- First Aid Alert Systems
- Emergency Help Points
- Leisure Centre & Pool Alarm Systems
- Lockdown Alarm Systems for Schools and Educational Centres RESPONDER



Call us now on +44 (0) 1737 226622
or visit www.sbes.co.uk

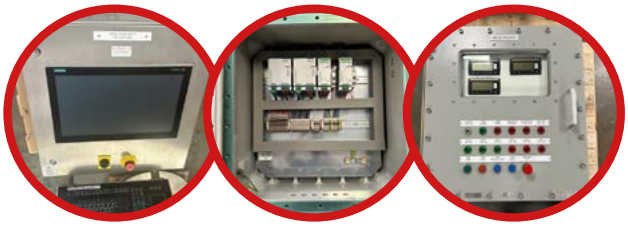
J.B.Systems

Hazardous Area Specialists for Over 40 Year's

Providing Expert Design and Manufacture of Control Equipment

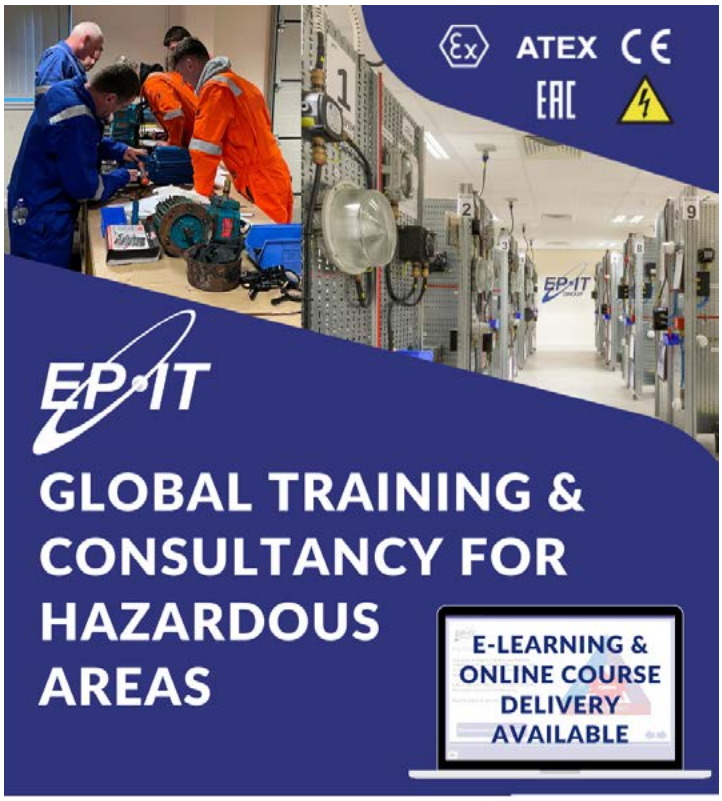
J.B.Systems is a Renowned Supplier of Brands Worldwide providing Ex systems, Flame Monitoring Systems, and other Hazardous Area Equipment of the very Highest Quality. Serving the Industry for over 39 Year's supplying complete Design and Manufacture of Control Equipment, Junction Boxes, Hazardous Area Lighting to the Petrochemical, Pharmaceutical, Water Treatment Sectors.

EMERSON · IRIS · Honeywell · indEx · Schneider Electric · ABB · sälzer · e2s

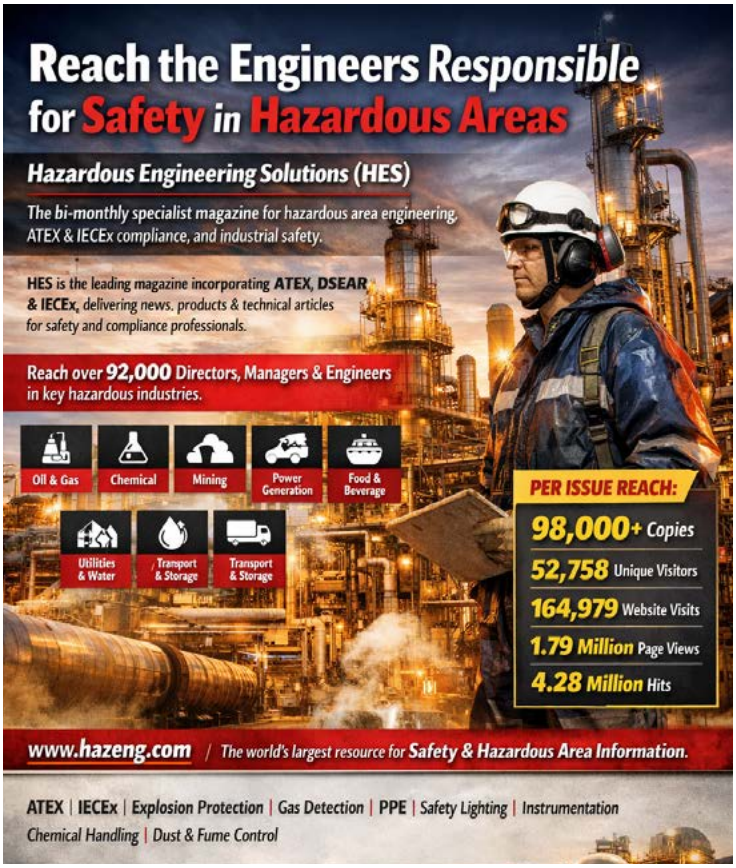


J.B. Systems Limited,
13 Bridgegate Business Park,
Gatehouse Way, Aylesbury,
Buckinghamshire
HP19 8XN

+44 (0) 1296 489967
sales@jbsystems.co.uk
www.jbsystems.co.uk



City & Guilds APPROVED CENTRE · CompEx EPIT Group Approved Training Provider · City & Guilds ACCREDITED





PVL

Engineers Supplying Engineers

Since 1966



ATEX INSTRUMENTATION, SIGNALLING & CONTROL

Engineered for hazardous areas

A comprehensive range of ATEX-approved equipment for the safe and reliable operation of industrial and process applications.



EX-TECH SIGNALLING

Explosion-proof Sounder & Beacon Combination SB150



EX-TECH SIGNALLING

Explosion-proof Manual Call Point CP135



ORION FC

ATEX Temperature Switch



VAL.CO S

ATEX Custom Level Switch

OIL & GAS | CHEMICAL PROCESS | WATER & WASTEWATER | MARINE & OFFSHORE | GENERAL INDUSTRY

Explore the ATEX range at

pvl.co.uk

sales@pvl.co.uk

+44 (0) 1892 66 44 99