

Lift truck driver awareness systems have changed

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New standards have called for increased safety performance levels for certain driver awareness systems in Zone 2 hazardous areas. The recent changes to EN1755* affect chemical companies, whisky distilleries and any manufacturing or logistics business using a system to alert lift truck drivers to the presence of an explosive atmosphere.

"In Zone 2 hazardous areas, an explosive atmosphere is not likely to occur in normal operation," says Rob Vesty from safety company Pyroban. "If it does occur, it will persist for a short time only, possibly due to an accident, which is why forklift driver awareness is so important."

Zone 2 areas are usually storage areas in which flammable liquids or gas is contained in sealed drums, tins or IBCs and where forklift trucks are widely used. For example, to transport bottled gas or materials in gas cylinder filling operations, or at distribution centres.

"ATEX** compliant lift trucks are usually specified featuring an active gas detection system which alerts the driver visually and audibly," he says. "But the standards have become even more stringent and this has led to Pyroban investing in a two-year change programme to meet the new requirements."

EN1755:2015 is a European standard that supersedes EN1755:2000 and became mandatory from November 2017, affecting the technical makeup of all ATEX 2014/34/EU truck conversions. It has led to changes to any device or controller carrying out a safety function, which includes the gas detection systems that alert the driver. The systems now need to fulfil the requirements of PLr=C*** in accordance with EN ISO 13849-1**** or SIL 1 in accordance with EN61508-1*****. This has affected the technical design of Pyroban's system6000™.

system6000 incorporates gas detection to continuously monitor the direct environment around the protected equipment. When a mixture of flammable gas or vapour in air is detected, system6000 gives an audible and visual warning to the driver at 10% Lower Explosive Limit (LEL) propane in air. At 25% LEL it shuts down the protected equipment, automatically eliminating the risk of an explosion.

Pyroban's system6000 combines gas detection with various explosion protection methods such as restricted breathing enclosures, stainless steel cladding of forks and surface temperature cooling to ensure the engine, motors, brakes, electrics and other components remain below the auto-ignition temperatures of flammable materials.

The system complements the latest technologies seen in lift truck design including energy performance and ergonomics, and is suitable for all types of materials handling equipment such as VNA, pallet, picking, counterbalance and reach truck designs. system6000 was also developed to work with other types of mobile equipment such as cranes and access platforms. This means that businesses can work with their usual forklift supplier and receive almost all of the performance benefits of the most up to date forklift models with full ATEX 2014/34/EU compliance.

In addition to the systems that alert the driver, EN1755 changes have affected tyre, seat, battery and other ancillary product requirements. Service engineers also need to be trained for the new requirements.

“Driver awareness is an important safety factor in Zone 2 as the explosive atmosphere is not expected,” says Rob. “In Zone 1 applications, passive protection is used as trucks need to operate through the explosive atmosphere. EN1755 also applies to these conversions.”

Pyroban’s Zone 1 conversions include explosion proof Exd enclosures, surface temperature limitation on motors, brakes, electrics and other components, Exd or Exe motors, Exi intrinsically safe circuits, Exm encapsulation and more. Diesel trucks also feature air inlet shut off valves and water-cooled exhaust gas coolers.

“We are encouraging those responsible and liable for placing explosion protected forklift trucks on the market, and users, to talk to Pyroban directly to understand how these changes affect them,” says Rob.

*EN1755 - ‘Safety of industrial trucks. Operation in potentially explosive atmospheres. Use in flammable gas, vapour, mist and dust’

**ATEX Directive 2014/34/EU of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to equipment and protective systems intended for use in potentially explosive atmospheres

***PLr - Determination of Required Performance Level

****EN13849 – Safety of machinery – Safety-related parts of control systems

***** EN61508-1 - Functional safety of electrical/electronic/ programmable electronic safety-related systems.
General requirements

Source: MOLOKINI MARKETING LTD; Pyroban Ltd