

ATEX FORKLIFT POWER SELECTION

There are now more forklift power choices than ever before and our product development engineers are always keeping a close eye on what options work for operations with potentially explosive atmospheres. With a lot of talk and rumours in the market, Dave Waring, Pyroban's Engineering & QHSE Manager provides a clear and consolidated guide for each forklift power source in ATEX areas.

DIESEL FORKLIFTS

Forklift trucks powered by a diesel engine have been converted for hazardous areas with great success for decades and as the emissions regulations got tougher, ATEX forklift conversion companies developed new solutions. However, there is a small percentage of diesel trucks that can't now be converted and conversion companies like Pyroban will advise at point of quotation.

The most recent advances include Stage V compliant engines, which makes the explosion protection conversion process even harder, mainly due to the high temperatures required to regenerate the particulate filter. That is why Pyroban stopped its plans to offer ATEX conversions for "Stage V" forklifts and mobile industrial equipment.

While it is theoretically possible to convert an ATEX stage V forklift, offering a Stage V solution has the expectation that the emissions will perform to all Stage V limits. However with the modifications required to meet ATEX, true Stage V performance can't be guaranteed so Pyroban does not want to mislead customers.

With rising diesel fuel costs, tough emissions regulations (with no true ATEX solution) and trend towards electrification, we expect the ATEX diesel forklift market to shrink even more.

LPG FORKLIFTS

For years Pyroban believed it was theoretically possible to develop an LPG ATEX compliant forklift truck, but we never did due to end users being comfortable with diesel power. This is the same for LNG.

Today however, advances in the core LPG technology and costs of running diesel trucks, LPG is a compelling alternative. We are now quoting for ATEX LPG forklifts for those applications that have an appetite for LPG due to their process or infrastructure. Bottled gas companies can now select ATEX LPG forklifts for example.

ELECTRIC FORKLIFTS - LEAD ACID BATTERIES

There is increasing demand for ATEX compliant electric trucks and we successfully convert all types and brands of truck.

The important factor is that a standard OEM battery should not be used in ATEX Zone 1, 2, 21 or 22 areas. Lead acid batteries in ATEX trucks should be certified properly, including testing the battery for vibration and shock. Therefore always demand an "ATEX compliant" battery, not a risk assessed standard battery.

The new lead acid technologies are also great for hazardous areas (ATEX compliant versions), helping to provide similar benefits to lithium-ion.

ELECTRIC FORKLIFTS - LITHIUM-ION BATTERIES

Lithium-ion batteries are an increasingly popular power option for standard lift trucks thanks to opportunity charging, less maintenance, and longer operation between charges.

However, as it stands in Spring 2022, and for the foreseeable future Pyroban declines to quote for the ATEX conversion of lithium-ion forklift trucks. Why? It is simply not clear what the right level of safety is for this technology and, as the Ex standards do not cover traction battery applications, one has to question whether they are safe for use in hazardous areas.

Furthermore, there has been a safety alert raised for some companies that have tried to put the battery in a flameproof enclosure without due consideration of the science.

HYDROGEN FORKLIFTS

There is currently no ATEX solution for forklifts powered by hydrogen fuel cells mainly due to the technology relying on a Lithium-ion battery as the main power source.

ADDED SAFETY FOR ALL TYPES OF EQUIPMENT

It is possible however to provide an added safety solution for all forms of power options according to a company's risk assessment. This is for companies that seek a safety solution for specific areas where flammable material is handled, but not in such quantities that would require full ATEX compliant Zone 2 (or Zone 1) solutions.

Pyroban's Gascheka Zone 3 is an affordable gas detection system that is specifically designed for these places within an operation – typically just outside of or adjacent to Zone 2 areas, where there is still a concern regarding explosion risks. Being an add-safety solution it works on any mobile equipment, whether diesel, LPG, electric (lithium-ion or lead acid battery powered) and even with hydrogen fuel cell trucks.

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