
Brent Frazer

Li-ion batteries: the cost-effective retrofit

Brent Frazer of Chase Technologies talks about the advantage of using Li-ion batteries for lifting equipment, such as electric forklift trucks, as a replacement for lead acid battery technology.

Chase Technologies was founded in 2017 as a supplier of lithium-ion (Li-ion) battery units for industrial forklifts and other heavy lifting applications. "We have since put about 190 battery units into forklift trucks, cleaning equipment, and access platforms across South Africa. We can accommodate any brand of equipment and, as long as we know the size of the battery tank, can retrofit any electrically driven industrial vehicle with a Li-ion battery solution," Frazer tells *MechChem Africa*.

Li-ion batteries have a modular nature, which makes it easy to package a battery pack to fit into most forklift truck battery tanks. The company's units are ideal for replacing lead acid battery technology and, because these have higher energy density than lead acid batteries, more amp-hours (Ah) of energy can be stored using the same physical space. This makes retrofitting to Li-ion almost as easy as swapping out the lead acid batteries, which has to be done on a regular basis, anyway.

"Swapping from lead acid technology to Li-ion has become a no brainer. While the units are a little more expensive, Li-ion batteries offer 12 000 hours of maintenance-free operation and they come with a five years warranty. Other advantages of switching to Li-ion include:

- **Fast charging:** A Li-ion battery pack can be fully charged within about 90 minutes using a standard (100-200 A) charger, and a 50% charge can be added in 30 minutes. Fully charging an equivalent lead acid battery may take up to eight hours plus a further few hours for the batteries to cool. If using Li-ion, fast charging enables clients to run their forklifts 24/7, because they can be sufficiently charged during routine break times.
- **Maintenance free:** No standby batteries are needed and less time and labour is involved in swapping out lead-acid batteries to keep machines operational, or for routine battery servicing.
- **Better energy efficiency:** A lead-acid battery loses much more energy to heat. A Li-ion battery offers energy efficiency of about 15% higher than lead acid, saving on electricity bills and reducing CO_2 emissions.
- **Substantially lower total costs:** Together, longer life, better energy efficiency and substantially lower maintenance costs add up to massive cost savings in the long term.

"Li-ion technology really comes into its own for multiple shift operations, where the machine can be handed over directly to the new operator without having to swap out the depleted battery pack for a fully charged one," says Frazer.

With Chase Technologies' latest technology units, the built in battery control system is constantly informing the operator about the state of the battery, and the battery maintenance system in all of these units is fitted with a SIM card for connectivity. "We are able to log-in and remotely monitor the performance of any of the units we have installed. If there is a problem, we can determine exactly what is going on and quickly give advice as to how to overcome it," he says.

The company's solutions are already highly successful in the rental market, particularly in Cape Town where there is a seasonal demand in pack houses for fruit and vegetable produce from the region. "The reliability and the maintenance-free nature of the technology makes it very attractive for rental companies and operators, as both can get better duty-cycles and more cost effective and hassle-free use from the equipment," Frazer informs *MechChem Africa*.

"We have also developed a solution for cold storage use at temperatures down to -20 °C, which is proving to work exceptionally well. These units are insulated and include an integrated heating element that is used to maintain the battery temperature above the minimum required threshold," he explains.

"We guarantee a five year maintenance-free life and, after that, while the capacity may have deteriorated a little, these units will still have a functional life of a further five years, albeit at a lower duty-cycle or in a lower power application," he explains.

"In these increasingly lean times, clients are looking more closely at securing the future of their businesses. At the end of the day, an investment in Li-ion is easily recoverable in relatively short payback times and, after having paid back the investment, substantial savings become available," he concludes. ❑

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