Latest nickel cadmium batteries prove a direct replacement

Faced by intense pressure to control costs, operators of electrical plants and commercial buildings are under pressure to control costs and support process continuity. One recent breakthrough in battery technology from Alcad is allowing them to do both, reports UKPN.

Nickel cadmium battery solutions provide better reliability, longer life and lower lifetime costs than lead-acid batteries.

However, until recently, anyone upgrading their battery from lead-acid to nickel cadmium has had to upgrade their battery charger too.

That's because lead-acid batteries can be fully charged in a narrow voltage window. However, nickel cadmium batteries have required chargers to deli ver a 'float' charge followed by a higher-level boost charge to bring the battery up to full capacity.

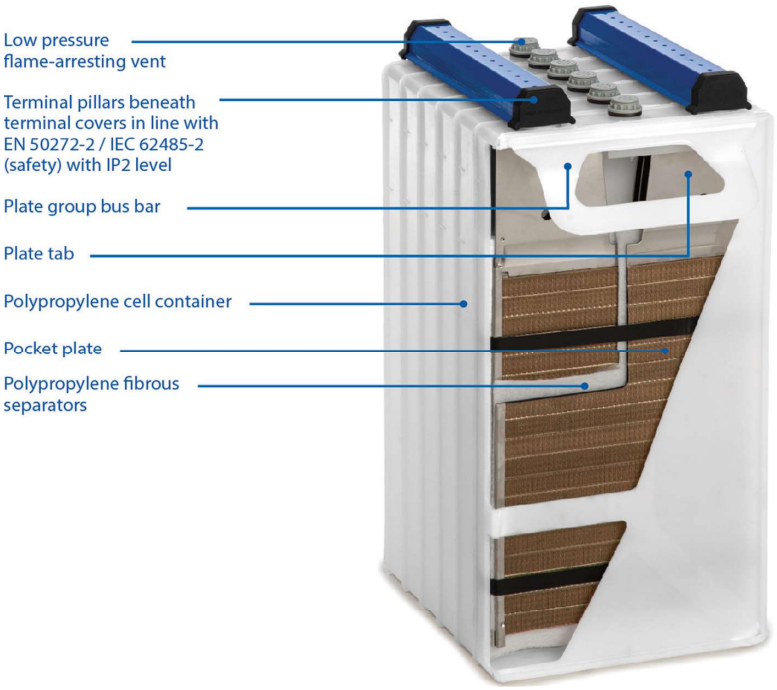
To do this, the chargers need to be fitted with dropping diodes, which control the voltage level and allow the charger to deliver at two separate voltages.

This has held back some operators from accessing the benefits of nickel cadmium battery technology.

The latest breed of nickel cadmium batteries are considered to be a drop-in replacement for lead-acid versions.

Alcad's research team has recently introduced some major design upgrades to its well-established Vantex maintenance-free nickel cadmium battery solutions. Engineers have made improvements to the design and chemistry of this latest breed of battery.

As a result, it is now possible to charge a nickel cadmium battery to full capacity with a singl e level of charge voltage of 1.39 V/cell – the same voltage window used to charge lead-acid battery systems.



"Nickel cadmium batteries also have the technical edge compared with lead-acid. Unl ike lead-acid technology, nickel cadmium battery solut ions do not experience sudden death where the internal structure of a lead-acid battery breaks down."

The result is that operators of industrial sites can upgrade batteries and save their operating budgets.

The most advanced operators today make procurement and investment decisions based on Total Cost of Ownership (TCO).

This is the sum of all of the costs associated with a battery installatio n over its life.

It includes the initial purchase cost, engineering and design, logistics and delivery, installation and commissioning. It also includes regular inspection, maintenance and testing, equipment failure and downtime as well as the logistics to arrange replacement and disposal of time-served batteries. In summary, all aspects of CAPEX and OPEX.While lead-acid batteries need to be replaced ev ery 5-7 years and need regular testing and maintenance, Alcad nickel cadmium battery solutions need little or no maintenance over a lifetime of 20 years or more.

The lead-acid batteries will need to be replaced several times during that period, meaning that an operator can make significant savings over the years by choosing nickel batteries.

Another two reasons mean that nickel cadmium batteries also hav e the technical edge compared with lead-acid.

*The first is their high reliability. This is thanks to the fact that unlike lead-acid technology, nickel cadmium battery solutions do not experience sudden death.

This describes the phenomenon when the electrochemical reactions cause the internal structure of a lead-acid battery to break down and suddenly collapse, causing the battery to fail at any time and without warning.

* The second reason is that nickel cadmium battery electrochemistry is capable of operating at higher temperatures than lead-acid.

Vantex nickel cadmium battery solutions have been found to provide a lifespan of more than 20 years at 25°C. A battery's operating temperature impacts the speed of the electrochemical reactions and can impact the duration of its operating life. By choosing a bat tery chemistry that can withstand long-term exposure to higher temperatures, operators can reduce the cost of maintenance and asset replacement.

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