



Data-Driven Approach Helps Beverage Distributor Reduce Maintenance Time and Costs

Summary

To replace lead acid batteries in its large fleet of forklifts across 10 locations, a large beverage distributor was interested in finding a lower-cost solution that reduced both battery maintenance time and the safety risks associated, as well as improved sustainability. EnerSys[®] conducted a power study to compare the performance and costs of several different forklift power options. For this company, a hybrid power solution of NexSys[®] TPPL and a few traditional flooded lead-acid batteries was the clear winner. Powering a majority of their fleet with NexSys[®] TPPL batteries not only provided this customer with a maintenance-free solution, but also reduced their downtime and provided safer conditions for their forklift operators. The Xinx[™] battery operations management program helps ensure the forklift batteries and chargers are operating peak performance. The company expects to save millions of dollars in productivity over five years.

Situation

An iconic soda beverage brand with a presence in 200 countries heavily relies on its 80 bottlers and distributors in the United States to make sure its lines of soft drinks, juices and enhanced waters are always on store shelves. To meet that demand, the facilities are continually using their electric forklifts to move bottles and cans between production, stock, and the shipping dock.

One of those beverage distributors that serves New York, New Jersey, and Pennsylvania has a fleet of 600 forklifts in 10 separate distribution centers. Each facility's needs varied based on daily throughput and required a hybrid solution to support their operations. Each facility uses a combination of sit down and stand-up counterbalance trucks and ride-on and walkie pallet jacks for three shifts, six days a week.

The Challenge

When it was time to upgrade its forklifts, the distributor assumed that the traditional flooded lead acid batteries they'd been using were still the right power source for the new forklifts. However, the flooded lead acid batteries required a lot of labor and maintenance, which created downtime for the forklifts and operators. Each battery required regular watering and equalizing, and batteries were switched out 2 times a day to meet performance requirements.

The distributor had purchased two to three flooded lead acid batteries for each forklift, which were stored and recharged in a large, dedicated area in each DC. With the current operations, there were opportunities for battery acid spills and safety risks with the handling equipment used for every battery swap out.

In addition, there was a corporate initiative passed down to each distribution center to address sustainability issues.

The distributor was interested in looking at more advanced motive power options for its forklifts that would reduce maintenance requirements and eliminate safety issues while complying with corporate sustainability initiatives.

Defining an Energy Policy

To identify the ideal power option to optimize performance across their entire fleet of forklifts, EnerSys® helped the distributor develop an energy policy for each location that considered amp hours used, electric consumption costs, and other expenses related to maintenance and labor.

To define the energy policy, EnerSys® conducted a power study using typical shift details and hours of operation for each truck collected by operations managers at every location.

EnerSys® processed the power study data with its proprietary EnSite™ modeling software. EnSite software applies an end-user's specific operating parameters and power requirements to assess the feasibility of battery solutions and generate reports comparing battery chemistries and costs.

The data compared power requirements for the forklift fleet, comparing the current lead acid batteries to lithium-ion batteries and NexSys® TPPL batteries.

Power Study Data Overview for 10 Locations



Solution

Based on the projected cost savings and the benefits for maintenance, safety, and sustainability, EnerSys® recommended switching to NexSys® TPPL batteries, which are never swapped out, do not need daily equalization charging, and never need watering. NexSys® TPPL batteries' sealed case and AGM construction eliminate any risk of acid exposure.

Based on the unique energy demands of the application, EnerSys® recommended different NexSys® TPPL battery models for each truck to meet specific power needs at the lowest cost.

To further improve uptime, the distributor was upgraded to NexSys®+ chargers, which have high charge rates that dramatically reduce recharge times. Each charger services multiple batteries and has a smaller footprint than a conventional flooded lead acid battery charging area.

Also, the distributor installed Wi-iQ® devices on their batteries to monitor a wide range of battery operating data, including amp hours charged/discharged, voltage, and temperature. This data, in combination with a Xinx™ efficiency management system, can be used to monitor battery performance and operator compliance, providing a complete ecosystem tailored to the distributor's needs.

Results

NexSys® TPPL batteries for 600 forklifts and 600 NexSys®+ chargers were installed at the 10 distribution centers. The new NexSys® TPPL batteries eliminate the need for watering and lengthy equalizing, which increases forklift uptime. Additionally, the lower water usage and improved energy efficiency helps meet corporate sustainability goals, while also reducing the risk associated with their previous battery solution.

Results cont.

The TPPL batteries are opportunity charged during breaks totaling one hour of every shift, and they never need to be swapped out for another battery. NexSys® TPPL batteries are sealed, so there's no chance of acid leaks or other safety risks associated with frequent battery changes.

The Xinx™ system monitors and reports battery conditions 24/7, so problems are identified early to prevent unexpected downtime or premature battery failure. With the battery usage data, managers can monitor operator performance to evaluate compliance for work hours and proper charging procedures.

The beverage distributor is saving millions of dollars each year by maximizing their productivity. In the past an operator would stop what they were doing to change a battery. With the NexSys® TPPL battery, the equipment and operators only stop when it is a scheduled breaktime. This setup allows the operation to maximize the productivity of the operators and equipment. In addition, the beverage distributor no longer incurs an expense of watering batteries, and it has allowed them to conserve thousands of gallons of water a year.



Thin Plate Pure Lead (TPPL) Design

Robust connections

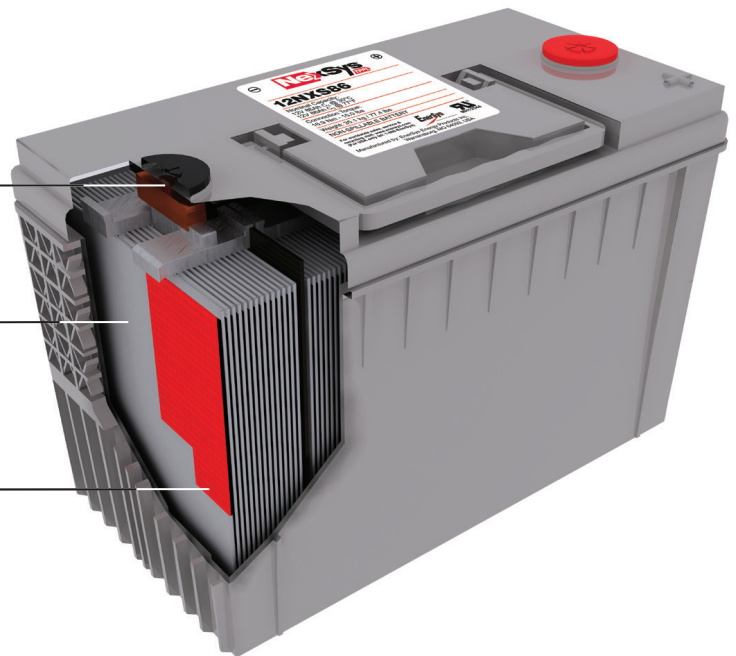
Cell connectors are casted and bonded to the plates to resist vibration.

Pure lead plates

Pure lead plates are extremely thin so more of them fit into the battery. More plates mean more power.

Compressed AGM separators

Absorbed Glass Mat (AGM) design prevents spills and delivers extreme vibration resistance.



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