

NISSAN FORKLIFT EUROPE B.V.

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Breakthrough technology

COMPACT Li-ION

BATTERY

Joint-venture for clean and powerful energy

In 2007 Nissan Motor Co., Ltd., NEC Corporation, and its subsidiary, NEC TOKIN Corporation, signed an agreement to establish a joint-venture company – Automotive Energy Supply Corporation (AESC) – to focus on lithium-ion battery business initially for wide-scale automotive application. Recently this was expanded to the forklift business as well. It resulted in the first forklift fully powered by lithium-ion energy. This important development is a key component of Nissan Green Program 2010 aimed for a sustainable mobile society.

Major Li-ION characteristics

Compared to conventional lead-acid batteries, Li-ION power offers a number of characteristics which not only offer environmental benefits but also operational advantages.

Environmental benefit

- No Emission gas
- No Harmful material
- Less energy consumption (less CO₂)

Operational benefit

- Quick Charge
- Long Life
- Maintenance Free
- Compact
- High Power
- Excellent (Dis)charge Performance

Long life

After some time the polar plates of a conventional lead-acid battery become sulphated. It causes high resistance and extreme difficulty to recharge again. The almost perfect reversible reaction process between electrons and Li-ion does not cause this type of "waste". It results in a longer battery life which reduces replacement investments considerably.

Li-ION battery

- Lead-acid
- Approx. 2x longer life

No emissions and no harmful material

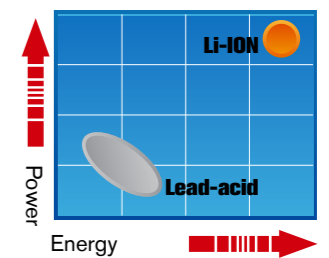
Does not use restricted pollutants such as cadmium, lead, mercury or sulfuric acid. As there is no emission of any gasses during charging, there is no need for dedicated charging bays too.



Higher power at smaller size

Li-ION batteries offer significant more power and energy, resulting in better performance and higher uptimes.

Size of Li-ION batteries can be reduced dramatically against conventional lead-acid batteries of the same capacity, allowing for flexible design and arrangement in the forklift truck.



Short charging time and excellent performance

Charging a Li-ION battery is quicker and allows for longer operational hours. It makes operations more flexible and reduces the need for additional batteries.

During charging and discharging there is less energy loss and less energy is needed to fully charge the Li-ION battery. Extended working time also results from larger recovering energy from regenerative braking.

Maintenance is virtually zero as there is no need for refilling of the battery cells with water as normally required for lead-acid batteries.