Linde equips its electric counterbalanced trucks of greater autonomy of load

Linde Material Handling **has recently launched its electric counterbalanced trucks, with greater energy independence, thanks to the higher density and efficiency of its lithium ion battery, whose load capacity ranges from 1.4 to 1.8 tons. Customers of the brand can already benefit from this interesting advantage, especially in the multi-use days, which guarantees a significantly longer period of activity and performance.**

> Within the load range of 1.4 to 1.8 tons each model has two types of battery, one with greater capacity than the other

Linde's product manager, Daniel Butte, *ensures that smaller batteries only need a temporary charge to run at full capacity.* In the case of the Linde E14 and E16 C (compact model), these have

a capacity of 13.1 kWh, while the larger models of three wheels, Linde E16 and E18, and the four-wheel models, E16 P, have a capacity of 16.3 kWh.

> It is advisable to use the higher batteries of 39.2 and 45.7 kwh if the working conditions demand a greater performance or if the trucks must operate for more than two turns

Linde also offers two charging devices of different capacity. "The power of the charger and the size of the battery determine the speed of charge", explains Butte. *"The larger charger needs about 50 minutes to fully charge a flat battery of small capacity. Charging a battery of maximum capacity with a small charger requires six hours"*

Linde customers who purchase elements of the Linde E14 to E18 ION range will receive the complete EC-certified system of the truck and battery, which perfectly fits the application requirements needed in addition to the Linde charger. *In this way, they will have everything they need to exploit this 100% battery technology.*

Linde guarantees 2,500 full charge cycles with a remaining battery capacity of at least 80%. Another feature is the simplicity of the load through a cover at the rear of the truck. Butte highlights the improved security features as an example of its new features. *The safety commitment begins with the cell, module and battery to prevent damage caused by overpressure, overheating, overload and full discharge.* The shock sensor offers additional protection that controls the impact on the battery and prevents misuse.

The patented system converts the regenerative braking energy into heat, instead of feeding back into the battery when it is at risk of overload

The battery management system functions as a control center, which is a great step forward in the safety level of the forklifts. *This way, all the parameters of the battery are controlled, informing the operator about possible dangerous behavior and ensures that the vehicle is under control in the event of a technical fault.* A 25 mm thick steel battery compartment protects its cells from external damage. Linde has done many tests to verify that the system is able to protect the battery from external aggressions.

Fastness and high safety, tested

As always, the trucks are tested and in this respect, Daniel Butte comments: "We have tested for the first time the functionality and stability of the whole system, both the wheelbarrow and the battery. *With lithium ion electric trucks, an external power source is no longer required.* Contrary to what happens with lead-acid batteries, which are not valid at present, because constant vibrations would damage the battery. "In addition, the truck with lithium-ion battery passed the impact test, in

which a fully loaded 8-ton wheelbarrow hit at full speed against a 3-ton electric wheelbarrow. *The fork did not penetrate the robust lithium-ion battery compartment of Linde".*

After these tests at Linde, the trucks were tested on the premises of a good number of customers. "All customers celebrated the benefits of new battery technology and were completely satisfied," Butte said in explaining its impact on the market.

> The main advantages that users stand out from the new Linde trucks are: consistent performance, time shift shifting, removal of the need to replace the battery and maintenance

About Linde MHI

Linde MHI is the subsidiary in Spain and Portugal of Linde Material Handling GmbH, a world leader in the manufacture of forklifts and indoor machines that stand out for their innovation, efficiency and low operating costs. With presence in Spain since 1963, it has 22 concessionaires and 11 delegations in the Iberian Peninsula and islands. Linde has a complete range of after-sales services with high quality standards.

Source: Linde MHI