



Saft Li-ion battery technology selected by Kalmar Motor to power the world's first hybrid tractor for wide body aircraft

Effective energy storage provided by a Saft Li-ion battery system will power the world's first hybrid tractor for wide body aircraft as Kalmar Motor demonstrates a new, low emissions approach to aircraft ground handling operations at one of Germany's leading airports

Munich, October 9, 2013 – Saft, the world's leading designer and manufacturer of advanced technology batteries for industry, has been awarded a contract by Kalmar Motor, the aircraft tractor specialist, to supply a state-of-the-art lithium-ion (Li-ion) battery system for the world's first hybrid electric tractor suitable for wide body aircraft. The contract for the TBL 800, that will shortly be trialled at one of Germany's leading airports, represents a significant entry by Saft into the airport ground-handling sector. This sector is both fast growing, with the world's airports serving more than 5.7 billion passengers in 2012 – up by 4.4 percent on 2011 – and is also facing new challenges in providing energy efficient and low emission operations.

Ground handling tractors play a vital role at airports by enabling large aircraft to be moved from their hangars to the passenger gate, as well as for the pushback to prepare for taxiing to the runway. Total reliability, round the clock, every day of the year and in all weather conditions is crucial, since the operation has to be completed within a very tight window of only around 20 minutes, and any delay can disrupt flight schedules. Kalmar Motor was the pioneer of the unique TBL towbarless tractor concept. It is now developing a new generation hybrid TBL 800 suitable for even large wide body aircraft, such as the Airbus 380, that will enable airports to cut their use of diesel-driven tractors to address growing demands for reduced environmental emissions.

The high energy storage provided by the Saft Li-ion battery system will fully power the TBL 800's electric drive throughout its shift, from early morning to late at night. The fast-recharging capability offered by the Li-ion battery makes this possible by facilitating regenerative braking as well as charging during break periods when it is not in use. For total security, the TBL 800 is also fitted with a diesel unit that cuts in to charge the battery before it is fully discharged, ensuring that the vehicle can never be stranded.

“Hybrid power, with energy storage provided by Saft Li-ion technology operating in combination with diesel generators is already well proven in a wide variety of materials handling applications, including harbour cranes. We are delighted to have this new opportunity with Kalmar Motor to progress into the aircraft ground-handling sector as part of our industrial vehicle strategy,” said Olivier Amiel, Saft Vehicle Business Unit Director.

The Kalmar Motor TBL 800 battery system will be based on Saft Li-ion technology developed to provide maintenance-free energy storage in a reduced volume, combining high operational reliability over thousands of cycles with outstanding energy efficiency. Saft is supplying a fully integrated energy storage solution including a battery management system. The first demonstration unit will be deployed shortly at a major airport in Germany.



About Saft

Saft (Euronext: Saft) is a world leader in the design and manufacture of advanced technology batteries for industry. The Group is the world's leading manufacturer of nickel batteries and primary lithium batteries for the industrial infrastructure and processes, transportation, civil and military electronics' markets. Saft is the world leader in space and defence batteries with its Li-ion technologies which are also being deployed in the energy storage, transportation and telecommunication markets. Saft's 3,800 employees present in 18 countries, its 15 manufacturing sites and extensive sales network all contribute to accelerating the Group's growth for the future.

For more information, visit Saft at www.saftbatteries.com

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