PRESS RELEASE

Saft wins multi-million euro contract from SATEE to supply onboard battery systems for Shanghai Metro Lines 3 and 4

Saft MSX fully integrated rail battery systems will deliver reliable emergency and traction backup power in a compact lightweight package that complements the space and weight saving design of SATEE's Optonix traction concept.

Zhuhai, December 10, 2014 – Saft, the world's leading designer and manufacturer of high-tech industrial batteries, has been awarded a multi-million euro contract by SATEE (Shanghai Alstom Transport Electrical Equipment) to supply the onboard battery systems for 35 new six-car trainsets currently under construction for Shanghai Metro Lines 3 and 4.

Alstom and SATEE, its local joint venture, is supplying Shanghai Shentong Metro Group with its Optonix traction systems for the new trainsets. Space and weight saving are the key features of the Optonix concept, developed specifically for the Chinese market to reduce travel time and increase the operating frequency of high-speed metro trains. SATEE has therefore specified Saft's compact and lightweight MSX nickel-based battery systems to provide the onboard backup power to support vital emergency services and emergency traction functions.

The economic boom in Shanghai has seen it grow to an estimated population of 23.9 million, making it the most populous city in China. This growth has caused a surge in traffic that was beginning to overwhelm the transportation system. Hence, in the early 1990s the city's authorities embarked on a 40-year phased programme that would include 14 metro lines covering over 500 km, making it the longest metro in the world. This investment in Shanghai's transport infrastructure has been mirrored in China's other major cities, with well over 8,000 metro units entering service in 2011-13, contributing to the continued growth of the Asia-Pacific rail market.

Emergency traction functions demand greater power

The increasing demand for safety and reliability from passengers has resulted in the Shanghai Metro operator seeking more powerful onboard batteries to support emergency traction functions that could be required in three scenarios:

- Failure of the power grid or pantograph - to provide traction power to move the train from the failure location to the nearest station or rescue exit in the tunnel, while the battery supplies the back-up power for other important emergency loads, like ventilation, communications and lighting
- When the train traverses a power-gap (or dead-section) in the main line - the battery must supply an instant and very large motor current
- For cases where the high voltage catenaries (for personnel safety reasons) cannot be used inside the depot, or for metro lines which use the third-rail power mode.

In a previous project for Shanghai Metro Line 11, Saft MSX batteries demonstrated their capability to deliver short duration traction power by enabling the train to run for a few hundred metres on its own onboard power. For current and future projects, the Shanghai Metro is now aiming for more challenging traction distances of 2 to 3 km.

"This major order for the Shanghai Metro further reinforces Saft's position in China's fast growing urban transportation market. It also illustrates how our advanced MSX batteries are the perfect complement to the latest traction technology that puts the emphasis on saving weight and space," says Xavier Delacroix, General Manager of Saft's IBG Division.

Saft is supplying SATEE with fully integrated battery systems comprising MSX batteries, battery boxes and related components for installation on the 35 new Shanghai Metro trainsets. Three of the 110 V, 160 Ah battery systems will be fitted to each six-car trainset. Delivery commenced in early 2014 and will be completed in 2016. This is the first project in which Saft's local facility in Zhuhai, China is supplying the complete system, including boxes, related components, commissioning and electrical testing for China's domestic market. It provides an important reference for Saft Zhuhai's system delivery capability for Chinese metro operators.

Saft MSX rail batteries

Saft MSX series batteries have been developed to deliver high power performance combined with high cycling capability in a compact lightweight package that enables train operators to optimize the size of their onboard battery system. With the capability to operate over a very wide temperature range of - 30˚C to + 50˚C the MSX design ensures safe and reliable backup for modern electric trains such as tram-trains, trams, EMUs, metros and high speed trains, including the safety-critical demands of electromagnetic braking applications.

Shanghai Metro background

The first line of the Shanghai Metro opened in 1993, making it the third city in mainland China, after Beijing and Tianjin, to have a rapid transit system. Since then, the Shanghai Metro has become one of the fastest-growing rapid transit systems in the world, with several lines still under construction. The Shanghai Metro ranks third in the world in annual ridership, with 2.5 billion rides delivered in 2013. It set a daily ridership record of 9.473 million in April 2014.

Shanghai Metro Line 3 covers 29 stations which connect North Jiangyang Road Station in the northern Baoshan District to Shanghai South Railway Station in the southern Xuhui District. Line 4 is a circle line with 26 stations, extending into Pudong area across the Huangpu River.

About Saft

Saft (Euronext: Saft) is a world leading designer and manufacturer 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 deployed in the energy storage, transportation and telecommunication network markets. More than 3,800 employees in 18 countries, 14 manufacturing sites and an extensive sales network all contribute to accelerating the Group's growth for the future.

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