



Saft batteries pass the test of time for Finland's double-decker passenger trains



VR Group, the Finnish rail operator, has relied on Saft's nickel-based batteries to provide onboard backup power for its electric double-decker passenger trains since the late 1990s. Rigorous laboratory tests carried out as part of Saft's customer support program have verified that the batteries will continue to provide excellent performance over a projected lifespan of 20 years.



Maintaining reliable customer service in Finland's harsh winter conditions

The Finnish railway network consists of a total of 5,919 km of railways, serving all the major cities and many rural areas. The country's passenger train services are operated by the state-owned VR Group, carrying over 75 million passengers a year. VR Group has established an excellent reputation for reliability and customer service by keeping its trains running smoothly even when operating in Lapland, close to the Arctic Circle, where winter temperatures can fall as low as -30°C. The record measured at the same height at the most Northern train station in Finland was -50,5°C in 1999.



VR Group onboard batteries – key facts

- Batteries first installed in 1997
- One battery is fitted on each coach
- Total of 230 coaches
- Battery role – Emergency backup for up to 3 hours

Backup batteries provide three hours of autonomous operation

In Finland's demanding conditions, reliable backup power is essential to ensure the continuity of critical systems if the external power supply to the train is interrupted.

It is not just a matter of comfort and convenience; passenger lives could depend on it.

VR Group relies on the onboard batteries on its double-decker trains to provide up to three hours of backup power for services such as emergency lighting, communications, door operation, and

heating and ventilation. This is particularly important in winter should a train become stranded between two stations.

Saft SRM battery performance confirmed by verification testing

Saft's specialized SRM rail batteries proved to be the ideal choice for VR Group as they are designed for extreme reliability with a robust sintered/plastic bonded electrode construction (S/PBE). Their nickel-based technology does not suffer 'sudden death' failure and provides a long service life while

requiring minimal maintenance.

As part of its customer service program, Saft carried out verification tests on batteries sampled from VR Group's train fleet. They were subjected to rigorous mechanical and electrical tests in the high-tech laboratory at Saft's plant in Bordeaux, France. The conclusion was that, even after over 17 years in operation, the battery capacity was perfect. In fact, the batteries have fared much better than expected, with the service life extending five years beyond the 15-year design life – a 33 percent gain in lifespan.



Saft SRM batteries for Finland's trains - key facts

- Robust S/PBE single cell construction
- Low maintenance needs - topping up with water every 12 months and reconditioning every 5 to 7 years
- Outstanding chargeability over an extended temperature window
- Reliable operation at temperatures from - 50°C to + 70°C
- 20-year service life confirmed by customer verification test program

"Saft's batteries have established an outstanding track-record for performance and reliability on our double-decker trains, so the results of the laboratory verification test were no surprise. It's good to know that the extended lifetime means we will only need to replace the batteries once during the 40-year service life of the rolling stock."

Mika Peräkylä, VR Group Technical Expert, electrical systems



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