

Leclanché earns new certifications from DNV and Lloyd's Register for its innovative battery storage system for 100% electric and hybrid marine vessels

- Pioneering Marine Rack System “MRS-2” now offers latest 65 Ah high energy battery cells for powering ferries, cargo and container ships and other marine vessels
- The 65Ah G/NMC cell enables the MRS-2 to provide 10% more energy within the same footprint & weight compared with the 60Ah cell.
- MRS-2 is a modular and scalable lithium-ion battery system with multi-layer safety measures from cell to system including proprietary battery management system (BMS)
- The liquid-cooled design offers superior performance compared to standard air-cooled systems that ensures enhanced cooling capabilities and best in class life cycle performance
- Successfully delivered e-Marine projects featuring Leclanché battery systems

YVERDON-LES-BAINS, Switzerland and ANDERSON, Indiana, 16 March 2022— Two of the world's leading classification societies have recertified Leclanché's [Marine Rack System](#) (MRS-2) for operation using the company's latest high energy 65 Ah lithium-ion pouch cells.

The certification upgrade from [DNV](#) was approved in late January 2022, while the [Lloyd's Register](#) type approval for the company's 60 Ah and 65 Ah cells was granted in October 2021. The approvals provide third-party assessment and certification of the system's performance and compliance with all applicable industry safety and regulatory requirements.

DNV, headquartered in Oslo, is the independent expert in assurance and risk management. It is a world leading classification society and a recognized advisor for the maritime industry. Lloyd's Register, with its main office in London, is a global professional services company specialising in engineering and technology for the maritime industry.

[Leclanché SA](#) (SIX: LECN), one of the world's leading energy storage solutions companies, has been a pioneering provider of lithium-ion battery powered marine battery systems for electric and hybrid maritime vessels. Its award-winning MRS-2 is already powering some of the most innovative fully electric and hybrid vessels including:

- Grimaldi Lines, which is now operating six of nine hybrid RoRo ferries, all equipped with 5.1 MWh Leclanché battery systems, in the Mediterranean Sea connecting Italy, Malta and Spain
- E-ferry Ellen, funded by the municipality of Aerø, Denmark and by the European Union through the Horizon 2020 and Innovation Program. The 100% electric car and passenger ferry has a 4.3 MWh capacity battery system allowing Ellen to travel up to 22 nautical miles on a single 25-minute fast charge. Ellen won the European Solar Prize Award presented by non-profit EUROSOLAR for her ability to demonstrate the potential of green electric mobility in shipping.
- The Wasaline Aurora Botnia car and passenger ferry, one of the world's most environmentally friendly roll-on/roll-off passenger ferries using both a liquified natural gas (LNG) engine and a 2.4 MWh lithium-ion battery system for use during entry to and exit from port. Wasaline received the Ropax Ferry of the Year award for the vessel's environmental accomplishments at the 2020 Ferry Shipping Summit in Amsterdam.
- Yara Birkeland, the world's first autonomous and fully electric container ship, scheduled to soon begin regular commercial operation on a route of around 13 nautical miles (24 km) off the coast of Norway and fully powered by a [Leclanché](#) 6.5 MWh battery system.
- North America's first of their kind all-electric e-ferries, The Amherst Islander II (1.9 MWh capacity battery system) and The Wolfe Islander IV (4.6 MWh battery storage system), built by Damen Shipyards Group for the Ministry of Transportation of Ontario, have been transported to Canada. They are expected to begin regular passenger service in 2022.

Anil Srivastava, CEO of Leclanché, said: “These latest certifications from DNV and Lloyd's Register confirm the quality, performance and safety built into our Marine Rack System based on 100% in-house technology. From our initial design concept through numerous enhancements over the years, our MRS has proven itself to be a reliable and sustainable alternative to traditional ferry propulsion systems.”

Marine Rack System-2

The latest generation MRS-2 is a modular and scalable lithium-ion battery system. It incorporates multi-layer safety measures from cell to system including its proprietary battery management system (BMS) which provides real-time access to battery status, performance and diagnostic data via a comprehensive user interface.

The system is available in four standard rack heights to suit varying size battery room footprints. Pack voltages are available up to 1100 V DC. The system comes with a 230 VAC power supply or an insulated DC/DC power supply.

Safety is a critical design element of the MRS with its integrated cooling and firefighting systems, including independent

ventilation ducting system to actively extract hot and flammable gases, which together reduce the risk of thermal propagation to virtually zero. In addition, Leclanché's liquid-cooled battery systems provide vessel operators with a long list of advantages over air-cooled batteries including improved safety, longer battery lifetime, smaller footprint/larger energy density, better heat transfer and lower energy consumption.

With the latest certifications, the MRS has a broad range of certifications from leading industry groups including:

- RINA: 55 and 60 Ah cells
- DNV: 43, 48, 55, 60 and 65 Ah cells
- Bureau Veritas: 43, 48, 55 and 60 Ah cells
- LR: 55, 60 and 65 Ah cells

For more information about Leclanché's eMarine solutions, visit <https://www.leclanche.com/solutions/e-transport-solutions/e-marine/> or contact info@leclanche.com.

About DNV

DNV is the independent expert in risk management and assurance, operating in more than 100 countries. Through its broad experience and deep expertise DNV advances safety and sustainable performance, sets industry benchmarks, and inspires and invents solutions.

Whether assessing a new ship design, optimizing the performance of a wind farm, analysing sensor data from a gas pipeline or certifying a food company's supply chain, DNV enables its customers and their stakeholders to make critical decisions with confidence.

Driven by its purpose, to safeguard life, property, and the environment, DNV helps tackle the challenges and global transformations facing its customers and the world today and is a trusted voice for many of the world's most successful and forward-thinking companies.

About Lloyd's Register

Lloyd's Register is a global professional services company specialising in engineering and technology for the maritime industry. We are the world's first marine classification society, created more than 260 years ago to improve the safety of ships. Our technical expertise is offered in more than 70 locations, serving clients based in 182 countries.

About Leclanché

Headquartered in Switzerland, Leclanché SA is a leading global provider of high-quality energy storage solutions designed to accelerate our progress towards a clean energy future. Leclanché's history and heritage is rooted in over 100 years of battery and energy storage innovation. This coupled with the Company's culture of German engineering and Swiss precision and quality, continues to make Leclanché the partner of choice for both disruptors, established companies and governments who are pioneering positive changes in how energy is produced, distributed and consumed around the world. The energy transition is being driven primarily by changes in the management of our electricity networks and the electrification of transport, and these two end markets form the backbone of our strategy and business model. Leclanché is at the heart of the convergence of the electrification of transport and the changes in the distribution network. Leclanché is organised in three business units: energy storage solutions, e-Mobility solutions and specialty battery systems. Leclanché is listed on the Swiss Stock Exchange (SIX: LECN).

SIX Swiss Exchange: ticker symbol LECN | ISIN CH 011 030 311 9

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