

# E-ferry

The world's largest\*  
fully electric ferry



Serving commercial and industrial customers,  
utilities and transport with high quality battery  
storage systems since 1909.

The E-ferry is the world's\* largest zero emission, fully electric ferry and is the result of an EU funded project.

Date of operation :	<b>2019</b>
Battery system :	<b>4.3 MWh,</b> G-NMC
Charging power :	<b>3.9 MW DC</b>
Propulsion power :	<b>1.5 MW</b> (2 x 750 kW)
Dimensions :	<b>59.4m</b> (length), <b>13.4m</b> (width)
Capacity :	<b>31 cars</b> or <b>5 HGV trucks &amp; 8 cars</b>
Country of operation :	<b>Denmark</b>
Battery service life :	<b>10 years</b>
Maximum speed :	<b>15.5 knots</b>
Propulsion motor :	<b>Liquid cooled electric motor</b> (Synchronous reluctance assisted permanent magnet technology)
Light ship weight :	<b>650 tons</b>
Passengers :	<b>198</b>

\* At time of construction

**Leclanché** Energy Storage Systems were selected to power the world's largest electric ferry, the E-ferry. With a 4.3MWh capacity, the E-ferry sets a new benchmark in marine propulsion applications. It will operate between the islands of Aero & Als in southern Denmark.



Replacing a diesel ferry results in annual emissions savings of :

- 2000 tons CO<sub>2</sub>
- 42 tons NO<sub>x</sub>
- 2.5 tons of particulates
- 1.4 tons SO<sub>2</sub>.

The battery system provided by Leclanché uses high energy lithium-ion G-NMC cells with unique safety features including bi-cell laminate design and ceramic separators to ensure performance does not come at the cost of safety. Leclanché develops and manufactures its own cells with both graphite/NMC (Lithium Nickel Manganese Cobalt oxide) and LTO (Lithium Titanate Oxide) technologies.

Parallel, redundant battery and drivetrain systems makes the E-ferry exceedingly safe and reliable.

The E-ferry has been designed with uniquely integrated battery and drivetrain systems providing unparalleled operating efficiencies.

## The Technology

**With over 100 patents** in lithium-ion battery cell technology and production, Leclanché batteries deliver exceptional safety, longevity and cycle life. Leclanché battery systems are manufactured in Germany & Switzerland, in compliance with the highest environmental standards.

## Part of the EU Horizon 2020 initiative

**The E-ferry** is part of Danish Natura project aimed at providing green transport for local residents. This project has received funding from the European Union's Horizon 2020 Research and Innovation Program under grant #636027.



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**STATIONARY SOLUTIONS**



**e-TRANSPORT SOLUTIONS**



**SPECIALTY BATTERY SYSTEMS**

**WE ARE IN CHARGE**