



Van der Leun is a company that has been involved in electrical engineering for over a century. Lighting bulbs and radio salesman Jan Cornelis van der Leun started replacing gas-powered lights by electrical lights. Soon after opening his store in 1920 in the port of Slidrecht he was increasingly asked for repairs to inland vessels.

ALL OVER THE WORLD.

In the years that followed van der Leun became more and more agile in this market. His sons developed the company into a serious player in the construction and maritime industry.

The shipyards in the port of Slidrecht became famous in the world due to the involvement in the dredging industry by manufacturing dredging vessels. In these years there was no dredger that leaves the shipyard without the leading edge technology of Van der Leun.

In this way, Van der Leun became a global player in the market for the maritime, dredging and offshore industry and expands its offices around the world, and developed a strong global network to support all the customers.

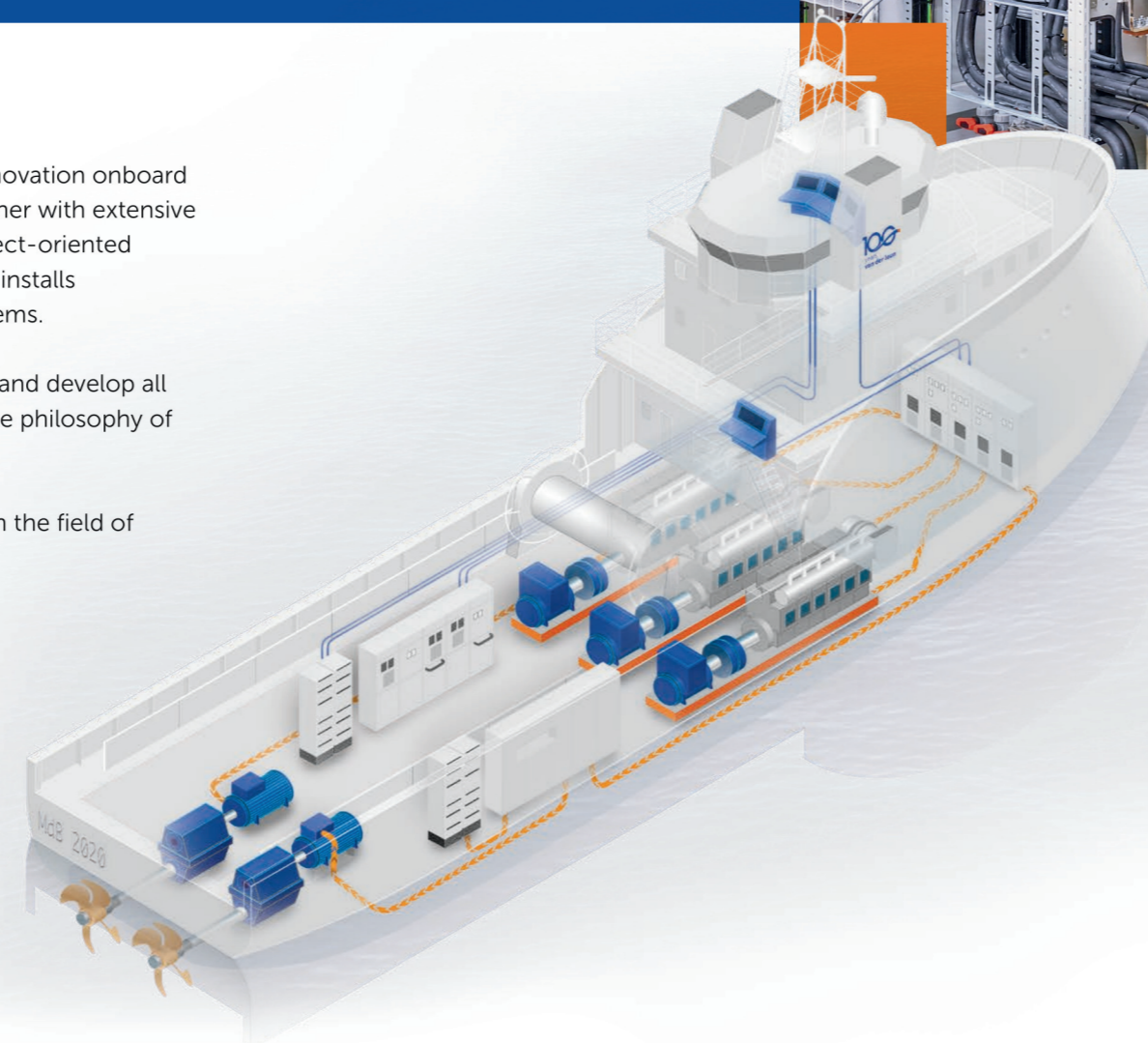
Van der Leun is dedicated to serving its customers locally on a worldwide basis. We call that 'Global reliability'.

And thanks to our long history of innovation onboard of vessels, van der Leun is still a partner with extensive experience in the field of smart project-oriented solutions. Van der Leun designs and installs innovative, integrated electrical systems.

In addition, we uniformly guarantee and develop all our acquired knowledge conform the philosophy of operational simplicity.

That makes us the global specialist in the field of maritime system integration.

MORE INFORMATION?
royalvanderleun.com/en/about-us



OPERATIONAL SIMPLICITY FROM A GLOBAL PLAYER



EXPERTISE

-  **ALLROUND SYSTEM INTEGRATOR**
-  **INDUSTRIAL ELECTRICAL SYSTEMS**
-  **METALWORKING**
-  **ELECTRICAL ENGINEERING**
-  **PROJECT MANAGEMENT & INSTALLATION**
-  **AUTOMATION**
-  **SERVICES & STRATEGIC MAINTENANCE**
-  **PARTS & TRADING**

Applications

Hybrid mode

The hybrid mode is the effective use of conventional energy sources such as generators with battery systems and electric propulsion. The presence of the electric powertrain is intended to achieve a more sustainable use of fuel of the generators. This optimised use is achieved because the generators run at a constant speed.

This way, a variety of solutions in combination with the VDL Energy Management System are available to achieve optimum and sustainable fuel consumption on any type of vessel.

Full electric mode

In this mode, zero-emission energy sources such as batteries and fuel cells are used. Often only a small conventional energy source is available in case of emergencies. Full electric functionality can also be installed on hybrid vessels, where we reduce idle emissions by preventing idling in conventional energy mode by shutting down the engine and switching entirely to battery power.

PTI-PTO

With this setup we can convert even the most conventional ships into hybrid vessels and ensure low emissions. By replacing the power generators on board, they can be used either as a generator or as an engine. With the help of an advanced drive system and the application of zero-emission energy sources, in combination with EMS, we get the most out of your system.

Peak shaving mode

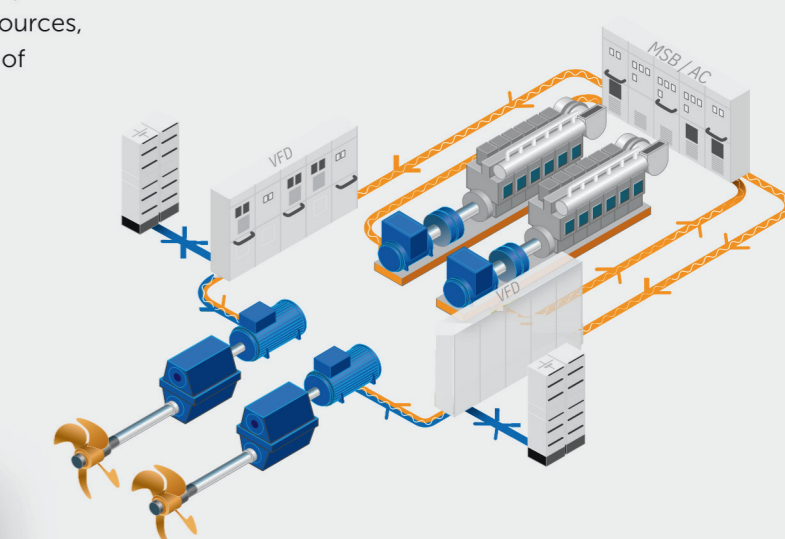
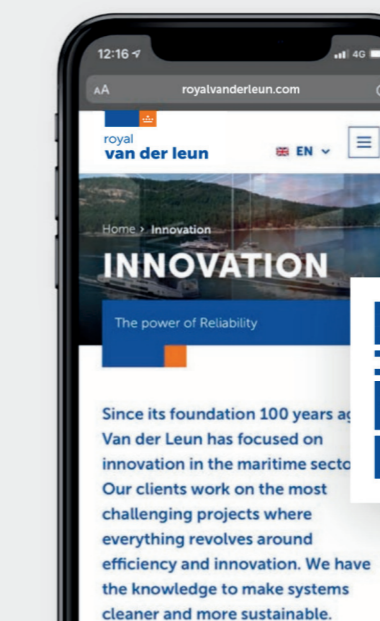
This mode is a mode of balancing the load steps on the power grid by adjusting or controlling the load. This can be achieved by direct intervention of the EMS and the use batteries or super capacitor. The EMS allows to reduce the demand for electricity during peak usage (peak shaving), which can, in turn, reduce costs by eliminating the need for peak steps on the power grid. It also reduce harmful emissions.

Spinning reserve

Modern hybrid vessels make use of efficiency-improving technologies such as regenerative power which convert the kinetic energy to electric energy, which in turn is stored in a battery or supercapacitor as a spinning reserve. This way, no energy is lost and the reserve can also be used for peak shaving mode.

Shore booster

This use of the EMS is a combination of various modes and is specifically used when the vessel is hooked up on a shore connection. By using a battery in combination with the EMS, larger power demands can still be met with a relatively small shore connection. Also, the vessel with a relatively small 'hotel load' in the harbour can lie completely emission-free alongside the shore. It is even possible to feed (back) any surplus energy to the main onshore grid.



MORE INFORMATION?
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SMART SOLUTIONS

Van der Leun has long time experience with Human Machine Interfacing. This knowledge and expertise is used into a number of in-house developed solutions that are often unique in their kind. The goal is always: efficient use of materials, a high degree of reliability and space for customization that fits your project.

Engine Management systems

The Van der Leun Energy Management System is a system that can be deployed on every vessel and with new as well as existing installations. Installing the EMS allows you to achieve optimum efficiency with your drive system and to make a significant contribution to a cleaner environment and a better world.

The system is used to monitor, control and optimise the performance of installed energy sources such as batteries and generators. It also continuously monitors and controls power sources based on load and battery charge status.

Before a battery runs low, the EMS initiates appropriate action. The operator does not have to worry about charging batteries and manually changing power sources.

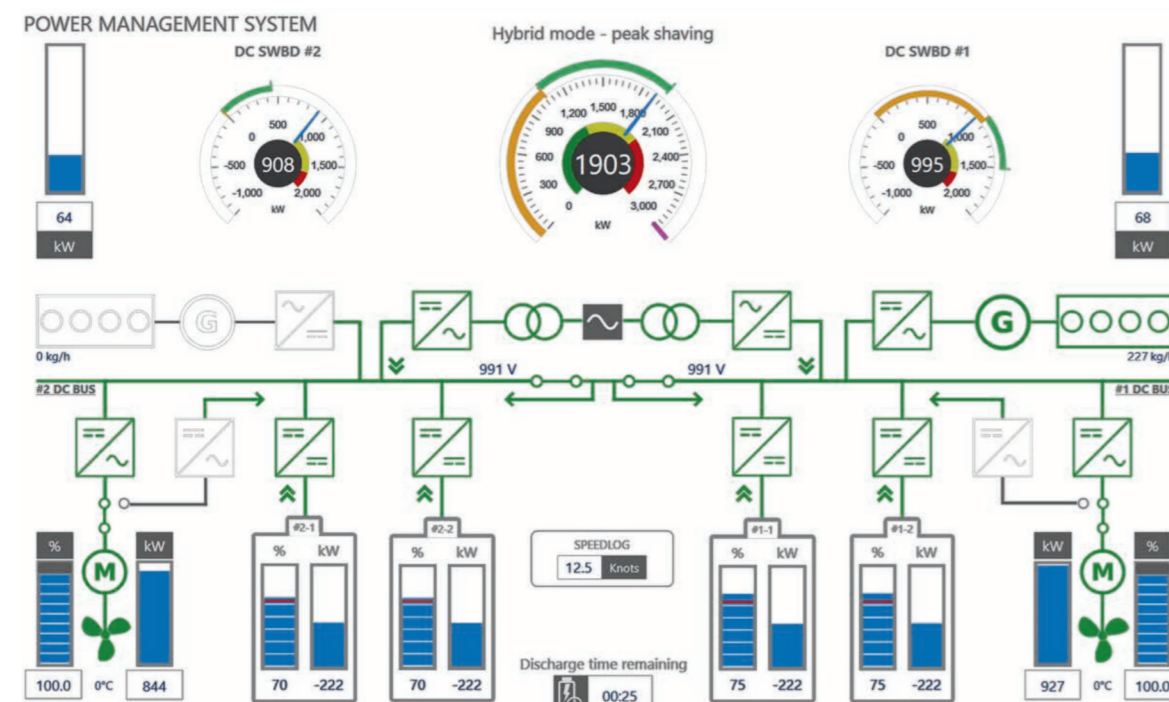
The EMS is perfectly suitable for monitoring various strings of batteries, balancing the SOC between the sets when charging and discharging.

Another important task of the system is collecting data from the battery systems and presenting these values in a clear and understandable way, such as differing voltages between cells. Also, temperatures of individual cells can be monitored. Each deviation in voltage or temperature can be compared to oil pressure and temperature deviations in a conventional combustion engine. Classification Societies also require these values to be available at the operating station.

The EMS also ensures that the battery system interfaces with the bus voltage via a power converter. This bus voltage, AC or DC, must be constantly maintained within a normal voltage range to ensure a stable voltage network on board. In situations where a battery system issues a power limit as a safety precaution, the EMS responds by taking action and informing the operator if necessary.

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Royal Van der Leun **ALL OVER THE WORLD**

BATTERY SOLUTIONS



Together with Alfen, Van der Leun uses their solutions of battery packs containers. Alfen offers a wide range of modular energy storage systems suitable for every application. TheBattery is a proven concept onshore based for e-trading, creating an off grid power supply or enabling peak shaving. With these applications Van der Leun will use the battery for hybrid functions, peak shaving in DP modes, fuel shaving, back up power, shore supply and hotel functionality.

HIGHLIGHTS OF THEBATTERY

- Engineered based on 80 years' experience
- Fully integrated end-to-end storage solution
- Standardized production with flexibility to adapt to your needs
- Best in class battery package and components
- Continuous insights and remote management
- Built for all applications and all environments
- Load balancing
- Energy trading



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The power of Reliability

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ROYAL VAN DER LEUN HYBRID SOLUTIONS



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