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D4.5 – Design and development of the casing

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Project Abstract

The goal of the SEABAT project is to develop a full-electric maritime hybrid battery concept that is based on:

- Modularly combining high-energy batteries and high-power batteries,
- novel converter concepts and
- production technology solutions derived from the automotive sector.

The modular approach will reduce component costs (battery cells, convertors) so that unique ship designs can profit from economies of scale by using standardised low-cost components. The concept will be suitable for ships requiring up to 1 MWh of storage or more.

Public summary

The SEABAT module design is based on a platform design which implements identical components and systems shared by both applications (high-power and high-energy). This approach comes from the automotive sector and leads to reduced costs for systems.

Some components are adapted to fulfil the needs of the naval application. For the SEABAT modules Lithium-ion cells, safety layers, terminal busbars, flexible PCBs (Printed circuit board) and their carrying structure and some cables are different for the high-power (HP) and the high-energy application (HE). All other components are identical. The different dimensions of both cell types and their fixation are covered by a centre alignment and in addition compensated by different positions of the cell side fixation. The side fixation itself is the same part for both module types.

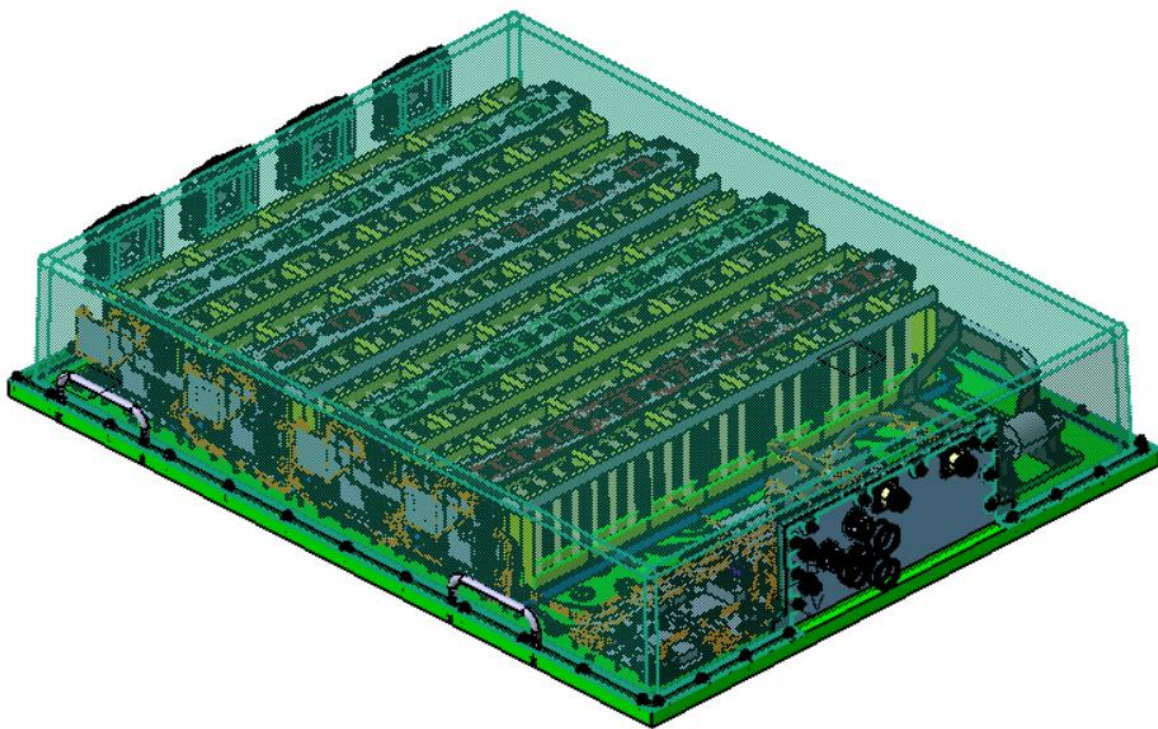


Figure 1: SEABAT module CAD assembly (design status 07.07.2023).

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Project partners:

#	Partner	Partner Full Name
1	FM	FLANDERS MAKE
2	DAMEN	SCHEEPSWERF DAMEN GORINCHEM BV
2.1	DGS	Damen Global support BV
2.2	DRDI	Damen Research Development & Innovation BV
3	FCSI	FINCANTIERI SI SPA
4	RINA	RINA SERVICES SPA
5	SOERMAR	FUNDACION CENTRO TECNOLOGICO SOERMAR
6	VARD	VARD ELECTRO AS
7	ABEE	AVESTA BATTERY & ENERGY ENGINEERING
8	IMECAR	IMECAR ELEKTRONIK SANAYI VE TICARET LIMITED SIRKETI
9	UNR	UNIRESEARCH BV
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