

Hyundai Heavy showcases safe vanadium-ion battery to power next-generation ships



Sam Chambers May 4, 2022



Hyundai Heavy Industries (HHI) is promoting the use of a next-generation marine battery without the risk of explosion or fire as one of the many R&D strands it has pursued on the path to shipping decarbonisation.

The shipyard has signed a memorandum of understanding (MoU) with Standard Energy, which has developed the world's first vanadium-ion battery (VIB), in a bid to create an energy storage system (ESS) for ships.

A VIB, which contains an electrolyte made from a mixture of water and ground vanadium, is fundamentally free from the risk of explosion or fire. It also features minimal heat production even in the event of overcharge or shocks.

Further, its output power and lifespan are nearly twice and more than four times as high as those of a lithium-ion battery. It is almost free from aging-induced degradation over repeated charge and discharge cycles, showing high stability and excellent durability.

Currently, lithium-ion batteries are generally used in ESS-equipped vessels, such as electric and hybrid ships. While a lithium-ion battery has the ability to achieve a compact size even in a large capacity, it can be easily exposed to explosion and fire accidents due to the highly volatile electrolyte it contains.

In cooperation with Standard Energy, Hyundai Heavy will develop a megawatt-class VIB-based ESS solution for ships to be demonstrated at sea, with a view to getting the solution certified within the first half of 2023. Further, it aims to complete the basic designs of a next-generation electrically powered ship and power transfer vessel.