



WÄRTSILÄ HY MODULE FOR BULKERS – SUPPORT EEXI COMPLIANCE AND IMPROVE CII

With a fleet of more than 12,000 vessels, bulkers are by far the most common ships sailing today – which is why they are the maritime industry’s biggest contributor to CO₂ emissions. The Wärtsilä HY Module for Bulkiers is a compact containerised solution that can cut a vessel’s emissions by up to 4% by optimising onboard power production, consumption and management, supporting compliance and securing a more profitable future.

Optimise onboard energy flows

The HY Module for Bulkiers combines an energy storage system and integrates additional energy sources, such as solar panels, with Wärtsilä’s highly sophisticated Energy Management System (EMS) to deliver auxiliary power to the grid. The containerised solution can be placed on deck to save space and can be installed without the need for drydocking.

The Wärtsilä EMS is a standalone controller for supervision and control of the power conversion and energy

storage systems, and is capable of connecting and optimising power sources and demands in an efficient, safe and stable way. The EMS is closely integrated with selected electronic power components in the hybrid system. The EMS communicates with external systems such as the battery management, power management and integrated automation systems. It is the brain of the onboard power system, optimising the energy flows between the different power producers, energy storage systems and power consumers to maximise efficiency.

KEY BENEFITS

- Support compliance with the Energy Efficiency Existing Ship Index (EEXI) and improve a vessel’s Carbon Intensity Index
- Reduce the need for engine power limitation to reach EEXI targets
- Reduce fuel consumption, emissions and maintenance costs
- Benefit from low total cost of ownership and a good return on investment
- Increase flexibility and improve safety with Wärtsilä’s Energy Management System (EMS) to optimise energy flows and stabilise engine load



The solution offers three ways to support auxiliary power and reduce fuel consumption and emissions:

1. Switch the genset off
2. Move the operation point to a more efficient point
3. Utilise external energy sources such as solar

The Wärtsilä HY Module for Bulkers improves efficiency in the following ways:

- **Optimal/strategic loading** – The energy storage system (ESS) charges and discharges as needed to optimise the load of the running auxiliary genset.
- **Pure battery operation** – In pure battery operation mode the ESS starts and stops the auxiliary genset according to predefined criteria – such as maximum power and number of start/stops allowed – to enable zero-emission operation.
- **Spinning reserve** – The ESS covers for loss of available power (for example during a shutdown of the genset) and discharges sufficient power to maintain frequency and voltage until the standby gensets can be brought online.
- **Peak shaving** – The ESS absorbs load variations. The system load response is not limited by the genset's load-taking capability as the battery supplies the power to even out load variations.
- **Energy source optimisation** – With additional energy available, for example from solar panels, fuel consumption and emissions can be further reduced.

Scope of supply

The standard scope of supply includes:

- Containerised HY module with/without solar panel, batteries, EMS, power drives and AC unit
- Installation and testing
- Ongoing service and support

Why choose Wärtsilä?

Wärtsilä's purpose is to enable sustainable societies with smart technologies. Using high levels of connectivity and digitalisation, Wärtsilä intends to lead the shipping industry's transformation towards a smart marine ecosystem and a decarbonised future. Wärtsilä has developed a series of innovative electrical power products that create levels of efficiency and environmental sustainability not possible with conventional mechanical systems.

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