

**Flexible Design.
Speed of Delivery.
Optimised Energy.**



Specification Sheet

Quantum High Energy (Quantum^{HE})

Wärtsilä's Quantum^{HE} is a fully-integrated modular and compact energy storage system (ESS) designed for ease of deployment and sustainable energy optimisation across site locations, project-specific requirements and market applications. Optimised for flexibility and functionality with several sub-systems, the product is compliant with North American and international standards.

Components

Quantum^{HE} consists of the following components:

- Enclosures with pre-installed liquid-cooled battery racks
- AC and DC outdoor rated cabinet, which connects battery strings with the inverter and provides an interface for auxiliary power and communications.

Quantum^{HE} can be paired with leading inverter manufacturers' products, lending the flexibility to parallel several enclosures needed to configure an ESS to meet project needs and grid connection options.

Key Benefits

The enclosure is optimised to fulfil the following criteria:

- Lowest lifecycle cost
- Smallest system footprint given the selected system configuration
- Shortest overall deployment time (equipment + transport + installation + commissioning)
- Minimised scope and complexity of installation
- Enhanced fire safety and explosion features

Enhanced safety design

- **NFPA 69 fan** system standard
- **Deflagration panel** (optional)
- **Improved wall integrity** with steel exterior panels
- **Prefabricated fire walls** uninterrupted by frame structure on long side of enclosure
- Exterior door handles for **ease of first responder's access**
- **Augmented sprinkler** design with two heads for better coverage
- **Gas sampling ports** on doors (high and low) for first responders

Features

Flexible design, optimised for use case: Quantum^{HE} can host up to four liquid-cooled racks per enclosure, which can be linked together to form a complete system. The ESS can be installed as a single enclosure, or as a system of several parallel enclosures, enabling the most optimal configuration to meet project requirements.

Safety: Quantum^{HE} is designed with safety in the forefront. It is fitted with several safety features, such as lithium iron phosphate (LFP) batteries, a 240-minute wall fire rating, NFPA 69 Active Ventilation, UL 9540A unit-level compliance, smoke and H₂ and fire suppression. Quantum^{HE} is designed to meet international safety standards.

Please see Wärtsilä Quantum^{HE} Compliance Sheet for additional information.

Rugged design and high availability: Quantum^{HE} is designed with careful equipment selection and high seismic capabilities, catering for a long lifespan in all conditions with minimum service interventions. Features include the ability to withstand wind, a high ingress protection design, and a long duration surface treatment specification.

Speed of delivery: Units are delivered to the site fully-tested and with batteries and a cooling system. Quantum^{HE} is also easy to handle during transportation and installation; strategically-placed lifting lugs provide the installer with options to optimally plan the onsite installation.

Ease of deployment: Quantum^{HE} is made with pre-designed jumpers and cables, in addition to unit-to-unit DC connection and AC auxiliary distribution—as well as signals, and communication interconnection—which are provided as part of the Quantum^{HE} scope of supply. Quantum^{HE} is designed to minimise the amount of field wiring, civil work and trenching needed to deploy an ESS. The enclosures can be anchored to the foundation by either bolting or welding.

Specification

Item	Quantum High Energy
Nominal energy	1629 kWh
Configuration	4P x 8 x 52S
Voltage range	1040 – 1518 VDC
Nominal voltage	1331 VDC
Nominal C-rate	0.25 – 0.5 C
Auxiliary load voltage	208/400 V 60 Hz and 380 – 415 V 50 Hz 4-wire
Auxiliary peak load	11.5 kW
Weight	13,500 kg / 29,762 lbs
Operating temperature	-30 +50°C
Dimensions (w, d, h)	2.1 x 3.3 x 2.6 m
Coolant type	Water and glycol mix
Fire wall rating (between units)	240 minutes

Wärtsilä Services Available

- System design
- Site commissioning
- GEMS Product Suite integration
- Rated design life of 20 years, with a standard product warranty of two years; extended product warranties are available.

See GEMS product specification sheets for additional details.



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