

WÄRTSILÄ'S GRIDSOLV QUANTUM

WÄRTSILÄ'S GRIDSOLV ACC_DCC CABINET

Deflagration panels

Gas detection: Hydrogen (H₂) detector (Option: Carbon monoxide (CO) detector)

Fire detection: Photoelectric smoke detector

Sensor: Temperature and humidity

Fire suppression: Dry pipe thermally activated sprinkler. (Option: Thermally activated fire suppression system aerosol)

Short circuit protection: aR class fuse

Isolation device: Rack DC switch

Surface treatment: C4 (Option: C5) paint*



Isolation devices: Main DC switch

Short circuit protection: aR class fuse

Over voltage protection: Type I+II

Sensor: Temperature and humidity

Local fire detection panel:

One per row in the ACCDCC

Surface treatment: C4 (Option: C5)

Fire detection: Photoelectric smoke detector

Audiovisual fire alarm (One per row)

Process stop button and reset button

GRIDSOLV QUANTUM

SAFETY SHEET

Safety is one of Wärtsilä's main values.

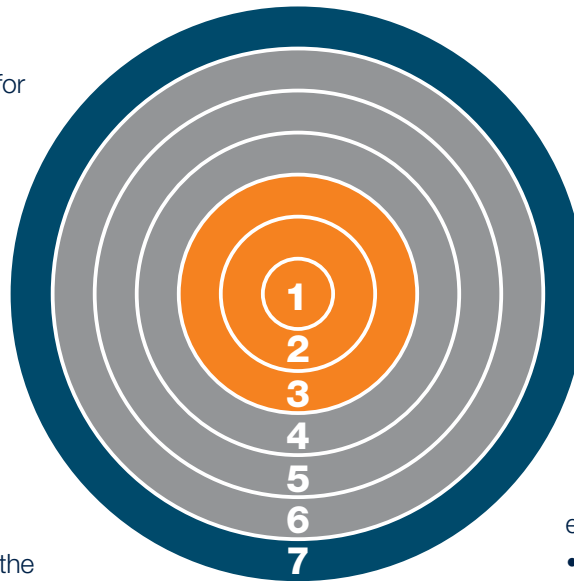
Our culture and policies require us to have hazard-free workplaces for our employees, customers, and suppliers. We do this by applying high standards of occupational health and safety and following any local additional rules and regulations during the product design and lifecycle support. We actively eliminate defects and hazards, and reduce Health and Safety associated risks.

GridSolv Quantum – Layered safety design

The Quantum enclosure comes with a dry-pipe for connection to a site-based water supply or first responder’s hose. The sprinkler nozzle will only release if sufficient heat is generated by an actual fire. Safeguarding against an accidental flooding of the cabinet. The cabinet can be optionally fitted with an aerosol-based fire suppression canister with an independent heat-activated release.

- **Location:** The Quantum has been designed as a cabinet used in outdoor Installation for remote locations. The enclosure is rated for IP55 (NEMA 3R), which protects against different weather conditions.
- **No-entry design:** The Quantum enclosure is pre-assembled design for minimal field wiring, civil work, and trenching on site. The enclosure is packed completely with equipment—designed for restricting operator from entering the container—accessibility from the door only.
- **Battery Management System (BMS):** The BMS constantly monitors the battery cell, module, and rack level.
- **Module design:** Battery module has been tested according to UL 9540A, during testing, no fire or explosion occurred, no propagation between the adjacent cells of the module was observed.
- **Deflagration panel:** The Quantum Enclosure wall has a 60-minute fire rating. The enclosure is further

Fire safety layers of protection



- 1 LFP prismatic cell with CID
- 2 UL 9540 A compliant module
- 3 BMS and high-speed fusing short circuit protection
- 4 Modular design
- 5 Fire resistant walls and pressure relief panels and segregation
- 6 Fire detection and suppression water/aerosol-based fire suppression and smoke detection/H₂/CO sensors
- 7 Cabinet environment monitoring

equipped with a roof-mounted deflagration panel that redirects all gases, smoke, and flame in the event of extremely hazardous conditions.

- **Fire suppression:** The Quantum enclosure comes with a dry-pipe for connection to a site-based water supply or first responder’s hose. The sprinkler nozzle will only release if sufficient heat is generated by an actual fire, safeguarding against an accidental flooding of the cabinet. The cabinet can be optionally fitted with an aerosol-based fire suppression canister with an independent heat-activated release.
- **Monitoring:** The Quantum enclosure is continuously monitored, and the operator is alerted through the EMS if abnormal temperatures, gasses, and/or humidity is detected.
- **Surge protection:** Surge protective devices connect between the feeder and the ground protects the equipment in the event of voltage spike.
- **Isolation device:** Quantum and ACC/DCC Cabinet has an isolation device that allows an operator to manually isolate the battery system at either rack-level or row-level.
- **Short circuit device:** aR class fuses are in the battery rack switchgear and in the ACC/DCC panel. These are very fast against and effectively limit short circuit current peak and energy.
- **Process Stop button:** A hard wired Process Stop (done by emergency stop relays) will send fast shutdown command to the inverter.

See GEMS product specification sheets for additional details.

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