CHANGING THE GAME AT SEA

SH Group 20’ Container

ORCA-ESS BOB 20’ Container – Containerised Battery Room – Containerised Solutions

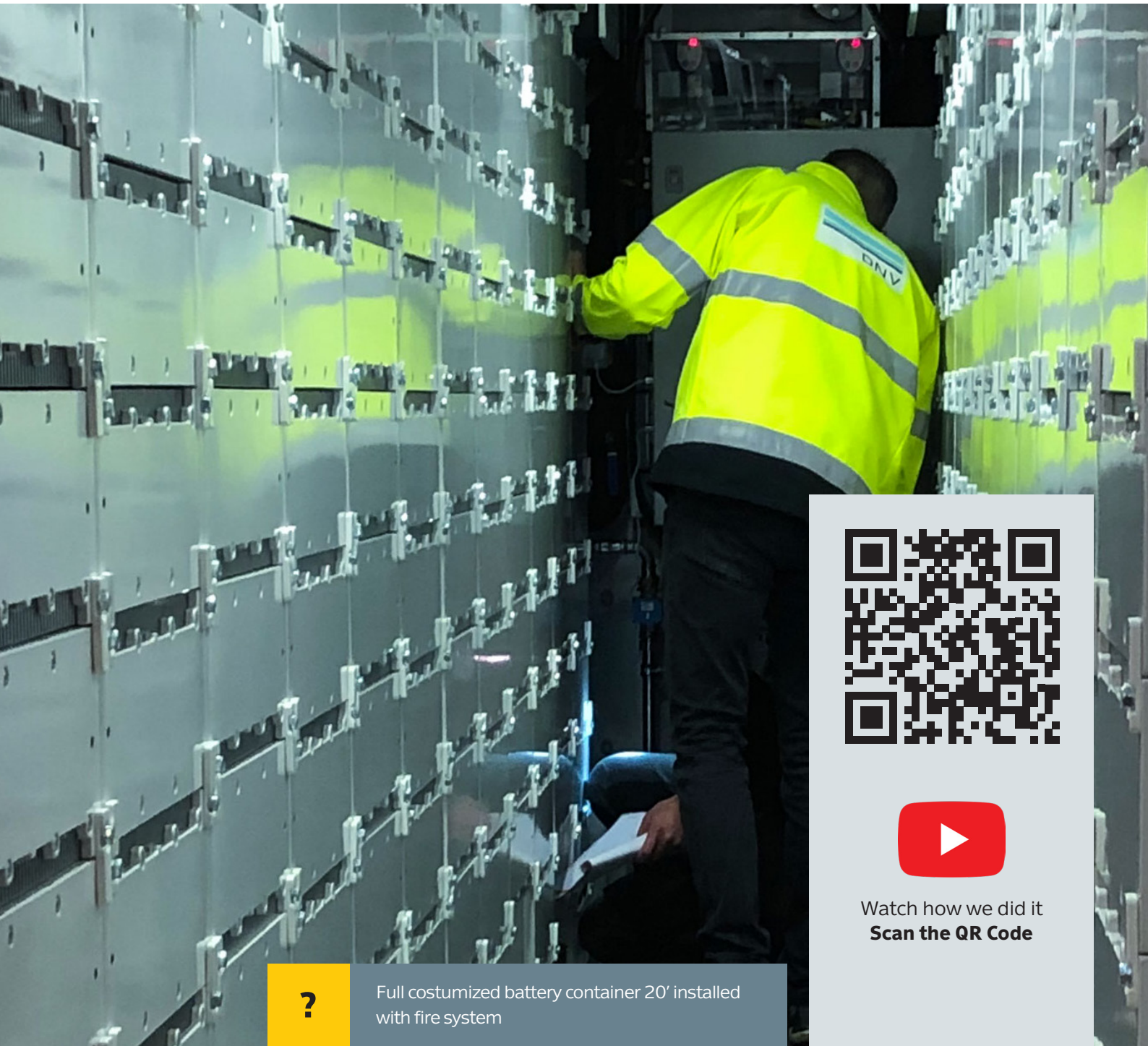
2022-01

Introduction

Orca Energy Storage Systems (Orca ESS) are the mid-energy and mid-power lithium-ion battery product from Corvus Energy. The Orca ESS product line is comprised of Orca Energy's vertical configuration and horizontal configuration. Orca energy systems are designed for hybrid and all-electric ferries, tugs, cruise ships, superyachts, hybrid offshore vessels, mobile rigs, and port cranes.

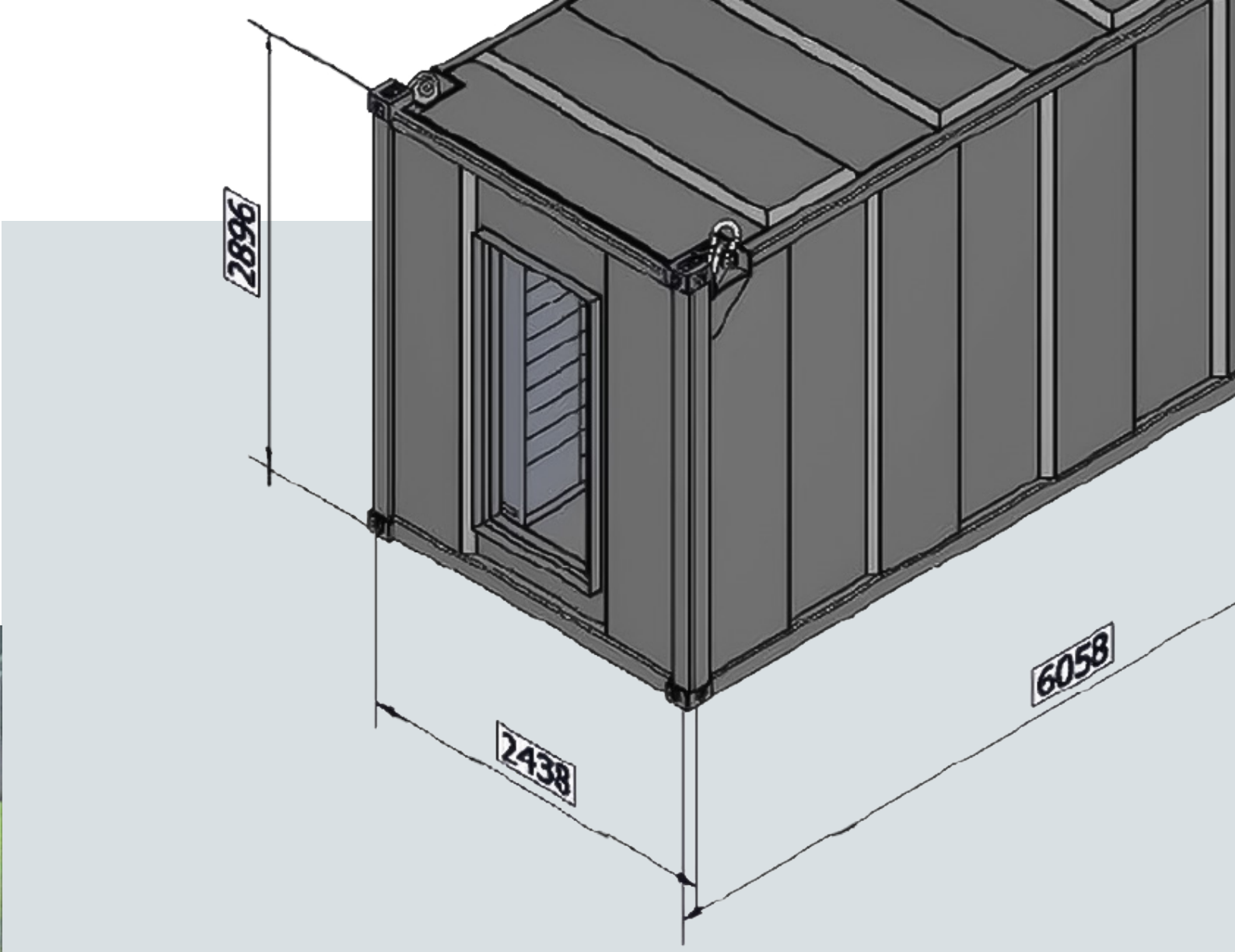
This document details the mechanical, electrical and communication interface between the vessel systems and Orca Energy Storage Systems (Orca ESS). This document also details the operation modes and standard use cases for Orca ESS. The intended audience includes integrators, shipyards, and certification bodies.

The Containerized Battery Room (CBR) is designed and produced after "DNVGL-CP-0553 Containerized systems Edition June 2020".



Watch how we did it
Scan the QR Code

? Full costumized battery container 20' installed with fire system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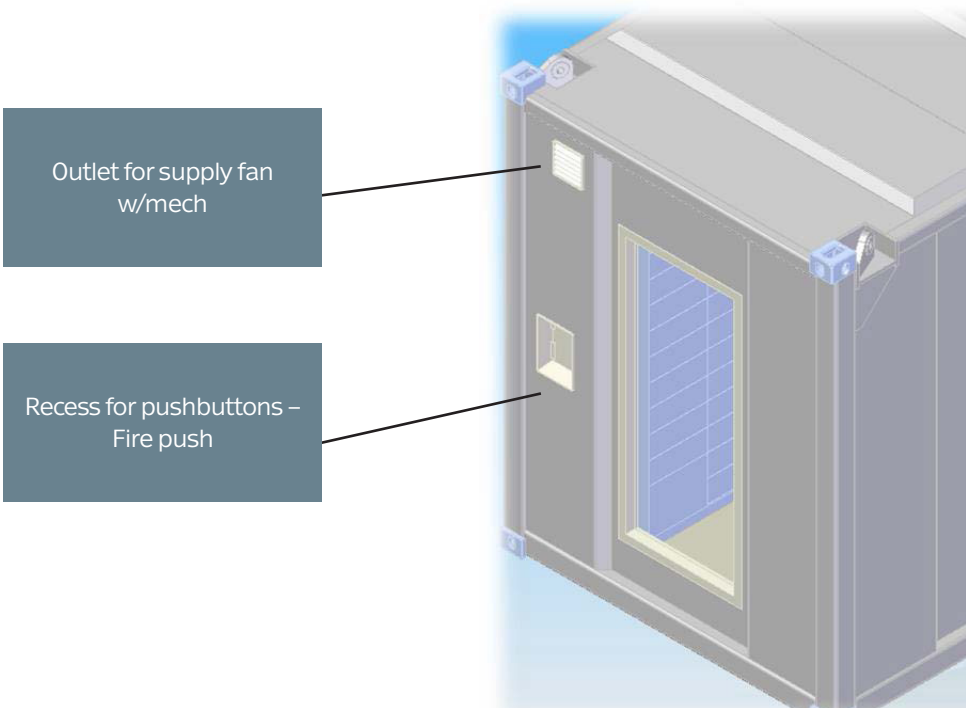
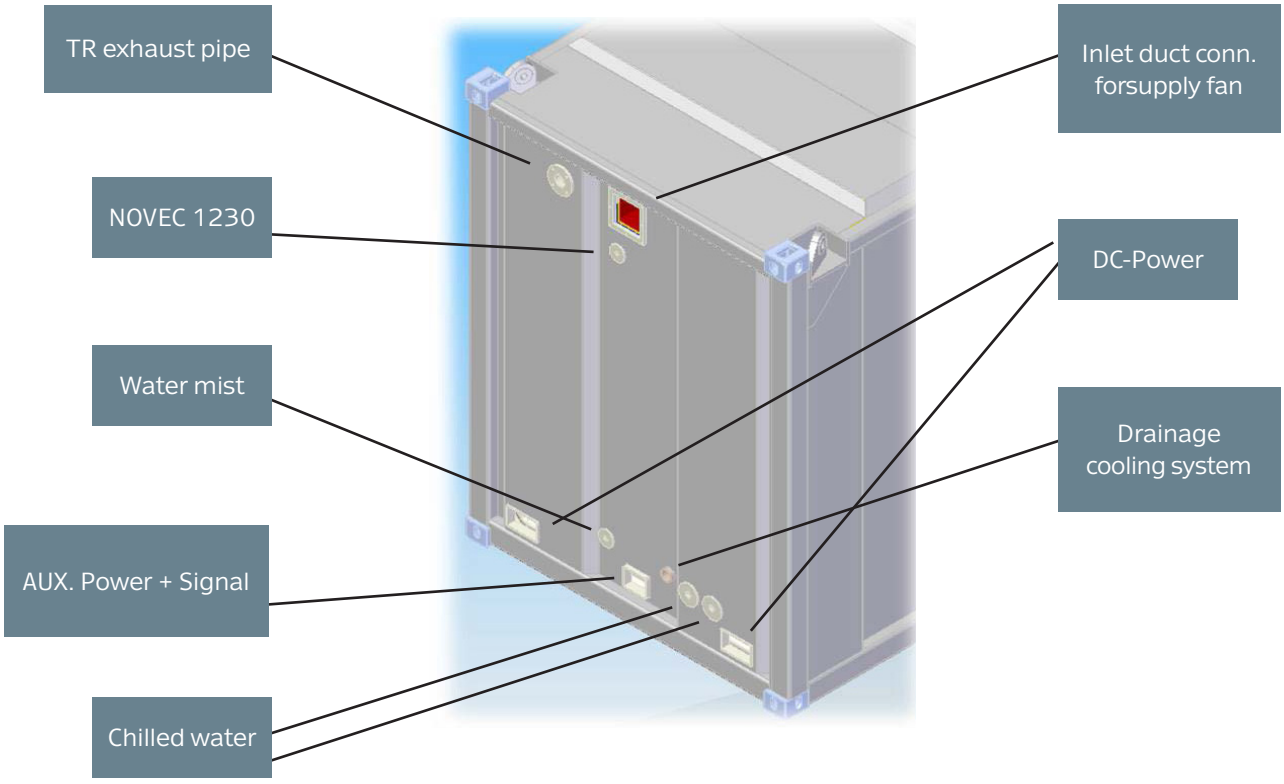
Datasheet

Product	Containerised Battery Room (CBR)
Type	ORCA_BOB-20.1500
Power rating	1,491 kWh
Size	Modified 20ft HQ container – 6.058 x 2.438 x 3.000 mm (LxWxH)
Weight	App. 26.400 kg (with batteries installed)
Climate	Nordic climate. Outside (open air) environmental conditions of: - 20 °C to +35°C (70%RH)
Equipment	▪ ORCA battery packs (12 racks/22 modules/1.100VDC) ▪ A60 insulated, weathertight door ▪ Gas detection system ▪ Prepared for fire detection system integration ▪ Firefighting system: Water mist, Optional: NOVAC1230 ▪ HVAC: 18 kW cooling / 6 kW Heating / 6 ACH ▪ Penetrations Roxtec, std. DIN-flanges, ventilation square flanges Internal speaker for PA/GA ▪ All interface connections prepared in internal switchboard
Electrical	▪ Short circuit (pr. rack) ▪ EoL – 6,4kA – max. 3ms – Internal fuse for SC protection ▪ BoL – 14,9kA – max. 3ms – Internal fuse for SC protection ▪ Note: Battery racks are not bridged inside CBR ▪ Max. voltage Power > 1.100VDC AUX. ▪ Voltage Normal ▪ Normal supply: 3x230VAC 50/60Hz – Fuse: 50A ▪ Emergency Supply: 3x230VAC ▪ 50/60Hz – Fuse: 16A
Cooling	DN40 pipe from vessels chilled water system - Minimum pressure 3 bars. Temperature 7/12°C
Paint	SA 2,5 + 120 my epoxy + 60 my polyurethane (RAL 9016)
Structural design	Designed acc. to deckhouse principal - DNVGL-RU-SHIP Pt.3 Ch.6 Sec.8
Approvals	DNV-GL Type Approval

Note: Subject to change without notice

Customer Connection Interface





Purpose	Description	Details
2 x DC-power	Roxtec S6 filled w/RM 30-blocks	DC power inlet/outlet 2x1x185mm2 per rack (max. 12 x 2x1x185mm2)
1 x AUX. Power + signal	Roxtec S4 filled w/various RM-blocks	Control interface (minimum) 1 x 3x220V Normal supply 1 x 3x220V Emergency supply 1 x CAT7 communication cable 1 x 14x2x0,75mm2 Hardwired signals 1 x 4x1,5mm2 emergency stop circuit
1 x Fire push button	Roxtec R70	Cables prepared for fire push button (loop topology)
1 x Drainage Cooling system	Roxtec RS68	No pipe connection needed, only if location of CBR is not suitable for deck drainage.
2 x Chilled water	DN40 PN16 flanges bolted	DN40 pipe from vessels chilled-water system. Minimum pressure 3 bar. Temperature 7/12°C.
1 x Water mist	DN25 PN16 flange bolted	DN25 pipe from vessels water mist system. Minimum pressure 16 bar.
1 x NOVEC 1230 system (Optional)	DN25 PN16 flange bolted	If applicable. NOVEC 1230 “dry water” bottle to be installed outside the CBR. Manual release of fire suppression.
1 x Ventilation inlet	200x200mm bolted	Ventilation duct from vessel accommodation. 200x200 ducting Minimum flow 250 m2/h
1 x Ventilation outlet	1 x 200x200mm bolted	Do not block. Must be to open deck.
1 x OFES /TR exhaust pipe	N65 with gooseneck	Do not block. Must be to open deck.
1 x CBR bottom drain (not on illustration)	DN25 PN10 flange bolted	No pipe connection needed, only if location of CBR is not suitable for deck drainage.

Note: Subject to change without notice

Many fossil-fuelled ships can be retrofitted to run wholly or partially on electricity, including the use of shore power in ports. SHG Energy offers customised turnkey solutions that take the hassle out of electrification