Corvus Dolphin Energy

The Dolphin Energy ESS is specifically designed for lightweight applications. Dolphin Energy combines outstanding energy density and a reasonable power density with the highest level of safety, setting new industry standards for maritime energy storage systems.

The flexible design of the Dolphin Energy allows the system to be stacked in various directions enabling high space efficiency in compact installations.

Applications
Dolphin Energy is ideal for ships with long, slow charges and discharges where lightweight is essential.

Typical vessels are:

- Tourist vessels
- Canal boats
- Yachts
- Sightseeing vessels
- Ferries

Features

- Low C-rate for slow charge and discharge
- Low weight
- Designed for voltages up to 1200 VDC
- Flexible installation
- Low life cycle cost
- Easy and safe plug and play connections
- Very flexible and modularised design
- Passive single-cell Thermal Runaway protection
- Scalable capacity and voltage according to vessel requirements
- Industry-proven Battery Management System (BMS)
- Remote monitoring capabilities
- Enhanced EMI immunity design for maritime environments

Corvus Energy safety innovations

Passive-Single - Cell-level Thermal Runaway (TR) Isolation

- True cell-level thermal runaway isolation
- TR does not propagate to neighbouring cells
- Isolation NOT dependant on active cooling
## Technical Specifications | Corvus Dolphin Energy

### Performance Specifications

| C-Rate - Peak (Discharge / Charge) | 1.0C / 1.0C for 10 seconds |
| C-Rate - Continuous (Discharge / Charge) | 0.5C / 0.5C |

### System Specifications

| Single Module Size / Increments | 8.3 kWh / 50 VDC |
| Single Pack Range | 116 - 199 kWh / 504-1195 VDC |
| Max Gravimetric Density - Pack | 168 Wh/kg | 5.96 kg/kWh |
| Max Volumetric Density - Pack | 217 Wh/l |

### Example Pack - 24 Modules

- **Energy**: 199 kWh
- **Voltage**: Max: 1195 VDC | Nom: 1046 VDC | Min: 864 VDC
- **Dimensions**: Height: 2725 mm | Width: 500 mm | Depth: 672 mm | 1183 kg

### Example System - 30 Packs

- **Energy**: 3972 kWh
- **Voltage**: Max: 797 VDC | Nom: 697 VDC | Min: 576 VDC
- **Dimensions**: Height: 1850 mm | Width: 3980 mm | Depth: 4030 mm | 23460 kg

### Safety Specifications

- **Thermal Runaway Anti-Propagation**: Passive cell-level thermal runaway isolation
- **Fire Suppression**: Per SOLAS, class and Corvus recommendation
- **Disconnect Circuit**: Cell individual fail-safe for over-temperature and over-voltage
- **Short Circuit Protection**: Fuses included on cell, module and pack level
- **Emergency Stop Circuit**: Hard-wired
- **Ground Fault Detection**: Integrated
- **Disconnect Switchgear Rating**: Full load

### General Specifications

- **Class Compliance**: DNV, Lloyds Register, Bureau Veritas, ABS, RINA
- **Ingress Protection**: IP55
- **Cooling**: Forced air
- **Vibration and Shock**: UNT38.3, DNV 2.4
- **EMC**: DNVGL-CG-0339

---

*2022-04-20*