

becker marine systems

COBRA
Compact Battery Rack



COBRA Features

- Superior energy density
- Compact and light-weight battery system
- Highest safety standards
- Integrated water cooling and BMS
- Scalable rack system up to several MWh
- Modular design
- Easy handling of battery modules (35 kg)

MARITIME BATTERY SYSTEM

By significantly lowering fuel consumption, maintenance costs and emissions, batteries for hybrid power supply, storage and main propulsion provide extraordinary benefits. With improved capacity-to-weight ratio from lithium-ion technology and growing demand for lower emissions, batteries have become an ever-increasingly attractive option for the large-scale supply of energy in the maritime sector.

COBRA is an advanced concept employing tried and tested 18650 lithium-ion cell technology and taking the special requirements of maritime operation and classification into account. Any scale of power storage is available by freely con-

figuring modular units in standardised racks of up to 1,000 V DC. They include integrated Battery Management System (BMS), gas exhaust and water-cooling for safe and reliable operation.

The Compact Battery Racks are being assembled and tested in their own newly built production facility near the Hamburg headquarters of Becker Marine Systems.



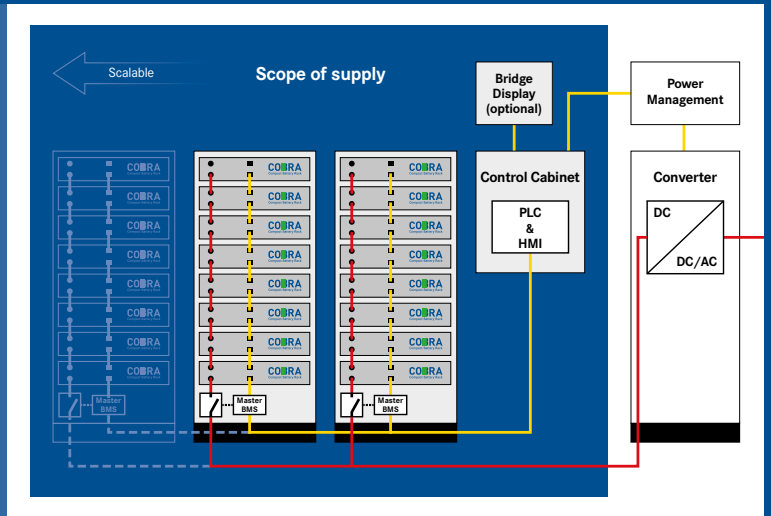
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COBRA PROPERTIES

- Battery modules with high-energy cells (4.6 kWh) or high-power cells (3.9 kWh)
- Up to 92 kWh and 1,000 V DC per battery rack
- Battery clusters with up to 10 battery racks and 1 control cabinet
- Dimensions of 2,220 x 600 x 600 mm (HxWxD) per rack (20 modules)
- Weight of 950 kg per rack (20 modules)
- Battery racks available in different height configurations
- Fulfills highest safety requirements to prevent propagation in case of thermal runaway
- Flexible interface to Power Management System (CanBus, ModBus or others)

Additionally a multilayer safety scheme of thermal and current safety devices for each cell as well as a permanent monitoring by battery management systems on cell, module and rack level guarantees the highest standard of safety. COBRA provides a robust and reliable modular battery design employing a patented connecting technology



ensuring the secure connection of a large number of cells. Elastic cell bonding provides a secure mechanical, thermal and electrical contacting for the entire service life as well as maximum resistance to vibration. Employing standard, high-quality 18650 cells with high energy density, COBRA is able to generate outstanding performance by interconnecting a high number of cells using only a few robust assembly components and connectors.



COBRA APPLICATIONS

- Electric drives
- Hybrid drives
- Peak shaving
- Hotel load
- Load leveling
- Energy storage

COBRA KEY FACTS

Performance

- Up to 1,000 V DC
- Energy-optimised modules (4.6 kWh)
- Power-optimised modules (3.9 kWh)
- Water cooling system
- Integrated heating system

Reliability

- Standard 18650 battery cells
- High cycle life
- High quality battery system

Safety

- Low fire hazard from small cells
- Single cell fuse protection
- Integrated battery management system (BMS)

Service

- Modular design, easy replacement
- Low weight of modules for easy handling
- Plug and play installation

Environment

- Second life application
- Possible recycling of battery modules

Authorised Distributor



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