

English



POWER PROTECTION AND CONVERSION SOLUTIONS FOR **MARINE APPLICATIONS**



YOUR POWER SOLUTION PARTNER.

Borri has been developing and building uninterrupted power systems since 1932 and is a global provider of power electronics systems and solutions for harsh industrial and demanding critical power requirements.

— Borri is a brand of Legrand, a publicly traded company and a global specialist in electrical and digital infrastructures, offering high-value-added products and solutions for commercial, residential and industrial buildings.

— Borri's R&D vast expertise in all facets of firmware, power electronics and mechanical design provides innovative solutions for tomorrow's problems in Industrial and Critical Power applications.

— The company prides itself on its first-class service and superior engineering disciplines. To ensure sustained quality, Borri manages all its processes in house from feed studies to design, production and after sales service technology.

— Based in Bibbiena, Italy with over 15,000m² production area, Borri operates across all five continents with subsidiaries in USA, Canada, Germany, UAE, India and Malaysia.

— Our strong trained and certified distributor network in every continent is able to provide on-site support and technical guidance indicative of our own capabilities.



Industrial Power Solutions

Designing, engineering and building customised AC and DC power supply systems for harsh industrial applications.



Critical Power Solutions

Designing and building mission critical UPS's 1- and 3-Phase up to 21 MW.



Service

Borri team of experts support you to the highest standards no matter where you are in the world.



POWER PROTECTION AND CONVERSION SOLUTIONS TO PROTECT ONBOARD ESSENTIAL AND SECURITY SYSTEMS WHEN ONSHORE OR OFFSHORE

from 5 kVA ——— to 2000 kVA



MARINE AC UPS

1-Phase AC UPS
from 5 to 200 kVA

3-Phase AC UPS
from 5 to 600 kVA

**1-Phase and 3-Phase
Modular AC UPS**
from 20 to 120 kW



MARINE DC UPS

1-Phase Rectifier/Battery Charger
24 V - 110 Vdc
from 50 to 100 A

3-Phase Rectifier/Battery Charger
24 V - 220 Vdc
from 50 to 2000 A

Robust and reliable engineered solutions designed to meet customers' demand and requirements for marine vessels whether at sea or at ports.



PASSENGER AND CRUISE VESSELS



SUPER, MEGA AND GIGA YACHTS



COMMERCIAL VESSELS



MILITARY VESSELS AND SUBMARINE



MOBILE OFFSHORE UNITS



SHORE TO SHIP / SHIP TO SHORE



MARINE CONVERTERS

Modular Rectifier/Battery Charger
from 24 V - 220 Vdc
from 15 to 1500 A

Onboard
Shore Power Converter
from 40 to 300 kW

Shore to ship
Static Frequency Converter
from 100 to 2000 kVA

Ensuring your safety onboard

Borri offers a complete range of products specifically tailored for marine applications. Depending on the kind of vessel and requirements, we provide the most robust conventional or modular AC and DC systems.

Our customized solutions are designed to withstand harsh conditions in typical marine environments. Vibrations, shocks, high temperatures and cramped spaces are all key issues to be considered when deploying a power protection system onboard.

Vessels need to be fully operational and at the highest performance levels during all their journey across seas and oceans. Any interruption, blackout and other disturbances can put at risk onboard equipment and passengers' safety. All Borri solutions meet the most demanding safety and technical requirements for marine environments, providing project approvals from different certification bodies as per customer needs (ABS, DNV, Lloyd's Register, Rina, etc.).



Custom engineered solutions



Reliable and robust systems



Certifications and approvals



Designed for easy installation and serviceability

AC UPS

Borri engineered and ruggedised UPS solutions are designed to protect ship critical equipment and essential systems onboard that need to keep fully operational even in case of power interruption.

DC UPS

Borri rectifiers securely provide supply to DC powered loads as well as battery charging, whether onshore or offshore. Flexible solutions that can be used to recharge ships' batteries and to provide reliable energy to DC vital and auxiliary services.

CONVERTERS

Borri product range includes both shore-to-ship and ship-to-shore converters, which guarantee reliable power supply to docked ships. Environmental footprint and cost savings are critical issues for port authorities and shipowners. Power converters reduce emissions and fuel costs when ships dock in ports. Borri converters regulate the grid power supply to the appropriate ship voltage and frequency.

Delivering secure power to all major marine environments

Borri has the privilege to be working with major shipbuilders, shipping lines and yacht companies in the private and public sectors since decades. Our systems are installed on different ships across the seas from cruise vessels to private yachts, from container to military vessels.

HIGHLIGHTED EXECUTED PROJECTS



CRUISE VESSEL

Customer:
MAJOR ITALIAN SHIPBUILDER

Solution

AC and DC systems installed in a 67.000-ton, 1.200-passenger cruise ship to protect safety systems and onboard critical applications. Borri has provided UPS systems from 5 to 200 kVA and rectifiers from 40 to 90 Amp and 24-110 Vdc. Vin=690 Vac / Vout=220 Vac. IP 22 protection degree. Battery cabinet integrated.

Certification body
Lloyd's Register



MEGA YACHT

Customer:
LUXURY YACHT SHIPBUILDER

Solution

IP 44 frequency converter 200 kVA with input range 170-520 Vac 50/60 Hz and output 400 Vac 50 Hz. Double input configuration to allow converter's power supply from 2 different docks. A Seamless Control Box manages the converter's synchronization with up to 4 generators.

Certification body
RINA



SUBMARINE

Customer:
ITALIAN MILITARY SHIPBUILDER

Solution

DC systems installed onshore providing submarine auxiliary services and battery charging. Vout = 165-605 Vdc adjustable (optional up to 900 Vdc) / Aout = 0-400 A adjustable (optional up to 2,000 A). IP 44 protection degree and AISI 316L cabinet. Optional rectifier discharger.

MILITARY AIRCRAFT CARRIER	30 x AC UPS 30 kVA	Italy
CONTAINER SHIP	DC UPS 50 A 450 Vac/110 Vdc AC UPS 100kVA	Germany
FPSO VESSEL	UPS 75 kVA, separated distribution and batteries	Nigeria
JACK-UP VESSEL	Dual AC UPS 40 kVA, 110 Vac, with common distribution board	Singapore
DRILLING SHIP	Dual AC UPS 32 kVA, 440 Vac 3-phase input / 220 Vac 1-phase output	Portugal
FLNG VESSEL	AC UPS 200 kVA and 350 kVA, 400/230 Vac DC UPS 110 Vdc, 92,5 kW and 400 V	Malaysia

Power protection and conversion systems for marine applications

Borri range of marine products are equipped with customized features and options to meet almost any customer needs. We can provide both standalone and modular systems adaptable to the different onshore and offshore applications.

MAIN APPLICATIONS

- Control/monitoring systems
- Navigation equipment
- Voyage Data Recorder
- Emergency public announcement
- Dynamic Positioning System
- Satellite communications
- Internal cable TV
- Azipod control
- Radio, telecom and IT systems
- Vessel automation
- Power distribution and filtering systems
- Emergency lighting and safety systems
- Waterproof doors

MAIN FEATURES

- Certifications: ABS, DNV, Lloyd's Register, Rina, etc...
- Protection degree up to IP 54
- Tropicalised electronic cards
- Front access for easy maintenance
- Compliant with anti-vibration regulations
- Flame retardant and low smoke emission cable (LSOH)
- Can operate with different battery technologies

MARINE

AC UPS

CONVENTIONAL UPS

- Power rating:
from 5 to 200 kVA 3/1-phase,
up to 600 kVA 3/3-phase
- Built-in manual bypass switch for maintenance
- Input voltage up to 690 Vac
- Input/Output galvanic isolation
- Operating temperature:
0°C to 40°C
(up to 55°C with derating)

MODULAR UPS

- Power rating up to 120 kW
- Up to 96% efficiency in double conversion
- Input voltage up to 690 Vac
- Operating temperature:
0°C to 40°C
- Easy maintenance and low MTTR



▲ Conventional UPS

MARINE

DC UPS

CONVENTIONAL RECTIFIER

- Power rating: from 24 to 200 Vdc,
50 to 2000 A 3-phase input
- Power rating: from 24 to 110 Vdc,
50 to 100 A 1-phase input
- Input isolation transformer
- Input voltage up to 690 Vac
- Convection cooling up to 500 A
- Operating temperature: 0°C to 40°C
(up to 55°C with derating)

MODULAR RECTIFIER

- 1-phase or 3-phase input
- From 24 to 200 Vdc output
- Input voltage up to 690 Vdc
- DC earth fault monitoring
- Operating temperature:
0°C to 40°C
(up to 55°C with derating)
- Easy maintenance and low MTTR



▲ Conventional rectifier

MARINE

CONVERTERS

ONBOARD CONVERTER

- Power rating: from 40 to 300 kW
- Wide input voltage range
170 to 520 Vac / 40 to 70 Hz
- Input/Output galvanic isolation
- Dual input Master/Slave configuration
- Operating temperature: 0°C to
45°C (up to 55°C with derating)

SHORE TO SHIP CONVERTER

- Power rating: from 100 to 2000 kVA
- 50/60 Hz and 60/50 Hz
- Parallel operation to increase output power
- Optional battery backup
- Operating temperature: 0°C to 40°C
(up to 55°C with derating)



▲ Onboard converter

Maintenance and Service

Customer's expectation defines Borri's priority from the early analysis of the project requirements to a worldwide commissioning and service. Many thousands of systems have been successfully installed and maintained globally, with continuous support from a highly trained team of expert, certified technicians and engineers. From the professional set-up of Borri's training centre or on site, the training and service team stand ready to provide support and contribute to tailored training at Borri or on site. You can be assured of Borri support to the highest standards no matter where in the world you are.



Planning, installation, commissioning

Borri assist you in every single step of your project. Our R&D team can analyse and develop solutions to a wide range of edge system requirements.



Analytical tests

Borri undertakes a series of analytical tests in order to guarantee higher efficiency and continuity to your system operation.



Repair & spare parts

All spare parts supplied by Borri are original, tested and guaranteed to be fully compliant with Borri solutions.



Maintenance

Preventive maintenance guarantees uninterrupted operations and optimised system efficiency.



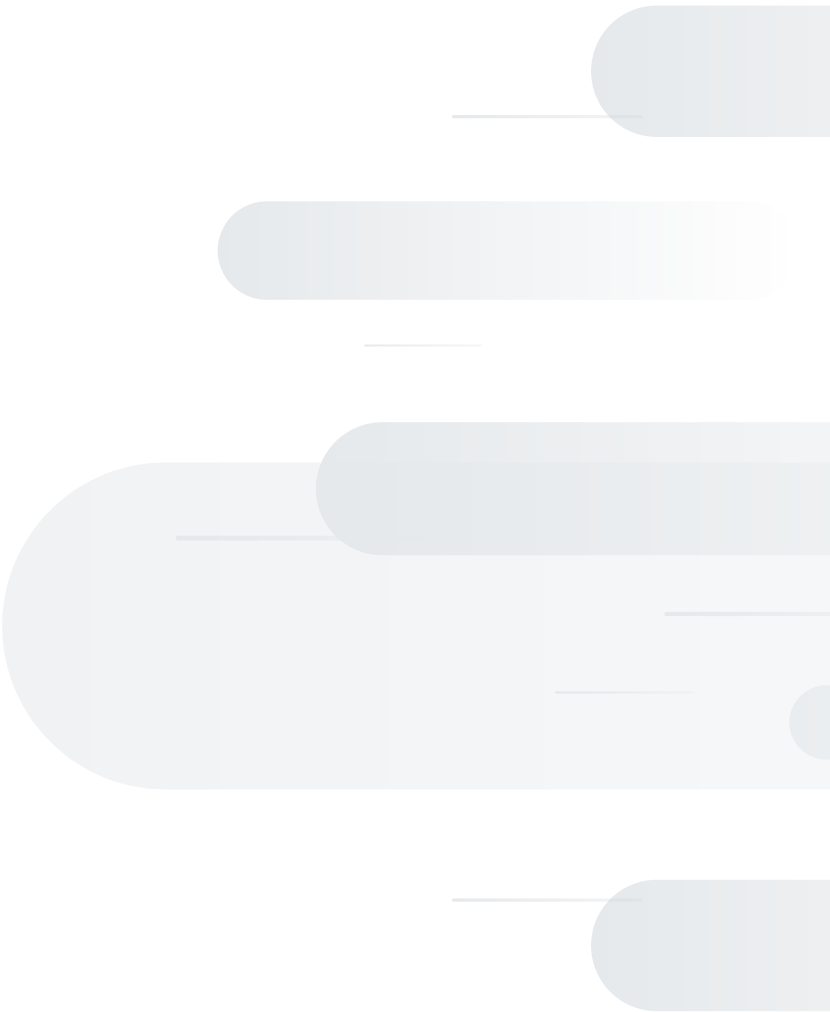
Battery tests

Batteries have a limited time life and their proper maintenance is of high importance to guarantee efficiency to the UPS and avoid potential failures. Borri delivers high quality and performing batteries to assure smooth operations.



Training

Borri offers distributors and customers a service training structured in 3 levels. Courses can be held in Borri training centres or on-site.





www.borri.it

**BORRI HEADQUARTERS
AND FACTORY**

Borri S.p.A

Via 8 Marzo, 2
52011 Bibbiena (AR)
Italy
Tel. +39 0575 5351
Fax +39 0575 561811
info.borri.it@legrand.com

**BORRI SUBSIDIARIES
AND SERVICE CENTRES**

Americas

Borri Power (US) Inc.

9000 Clay Road, Suit 104
Houston, Texas, 77080
USA
Tel. +1 346 212 2686
Fax +1 346 980 8875
info.borripower@legrand.com

Asia Pacific

Borri Asia Pacific
Engineering Sdn. Bhd.

No.13, Jalan Serendah 26/41,
Sekitar 26, Seksyen 26,
40400 Shah Alam, Selangor
Malaysia
Tel. +60 3 5191 9098
Fax +60 3 5103 8728
sales@borri-asia.com

India

Borri Power India Pvt. Ltd.

Plot No. 69, Ground Floor
Nagarjuna Hills, Panjagutta
Hyderabad, 500 082
India
Tel. +91 40 2335 4095
info.borri.it@legrand.com

Middle East and Africa

Borri Power
Middle East FZCO

1-151, Techno Hub
PO Box: 342036
Dubai Silicon Oasis, Dubai UAE
Tel. +971 4 3200528
Fax +971 4 3200529
info.borri.it@legrand.com